

NONLETHALITY AND PEACE OPERATIONS

A thesis presented to the faculty of the U.S. Army  
Command and General Staff College in partial  
fulfilment of the requirements for the  
degree

MASTER OF MILITARY ART AND SCIENCE

by

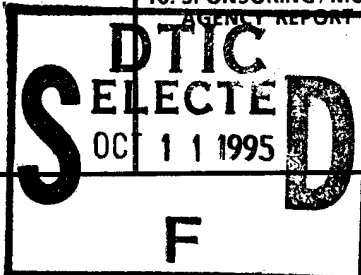
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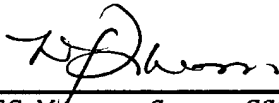
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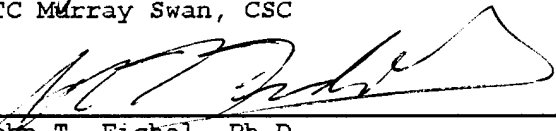
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

## ABSTRACT

NONLETHALITY AND PEACEKEEPING by MAJ Stephen R. Pope, Canadian Forces,  
103 pages

This study investigates how and to what degree nonlethality could enhance peace operations. A nonlethal weapon is an instrument used in combat which is designed to achieve the same tactical or strategic ends as lethal weapons, but which are not intended to kill personnel or cause unacceptable collateral damage.

The study focuses on the grey area between peacekeeping and peace enforcement operations where the use of lethal force becomes a critical issue. Missions, such as UNPROFOR in Bosnia and Croatia and UN and US operations in Somalia, are used to highlight the issue. The study develops seven representative peace operations activities that could employ lethal force and three categories of nonlethal weapons. Case studies are then used to show how nonlethality can be effective.

The thesis concludes that nonlethality can provide some significant benefits to peace operations, especially for peacekeeping missions that approach peace-enforcement. The work recommends further study of nonlethal technologies, applications, and connections with police operations and joint applications.

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## TABLE OF CONTENTS

	<u>Page</u>
APPROVAL PAGE . . . . .	ii
ABSTRACT . . . . .	iii
ACKNOWLEDGEMENTS . . . . .	iv
CHAPTER	
1. INTRODUCTION - NONLETHALITY AND PEACE OPERATIONS . . . . .	1
2. PEACE OPERATIONS . . . . .	16
3. NONLETHALITY . . . . .	42
4. NONLETHALITY AND PEACE OPERATIONS - ANALYSIS . . . . .	60
5. CONCLUSIONS AND RECOMMENDATIONS . . . . .	89
ENDNOTES . . . . .	101
BIBLIOGRAPHY . . . . .	105
INITIAL DISTRIBUTION LIST . . . . .	109



## CHAPTER 1

### INTRODUCTION - NONLETHALITY AND PEACE OPERATIONS

A non-lethal weapon is an instrument used in combat which is designed to achieve the same tactical or strategic ends as lethal weapons, but which are not intended to kill personnel or inflict catastrophic damage to equipment. . . . Nonlethality is a concept of warfare which includes non-lethal weapons and their consideration in both tactics and strategy.<sup>1</sup>

Office of the Under-Secretary for Defense, Non-Lethal Weapons

How and to what degree can nonlethality enhance peace operations? This is the question that is central to the issues addressed here. The opening quote serves as the basic definition that will be used throughout this paper for nonlethality. The definition game is important as nonlethality is a relatively new subject. Chapter three will explore the definition in more detail, to determine the appropriateness of the term.

This thesis proposes that nonlethality can provide some significant benefits to peace operations, especially for peacekeeping missions that approach peace-enforcement.

United Nations (UN) Commanders face a difficult and complex challenge when employing lethal force during operations that stretch the definition of peacekeeping to the limit and border on peace-enforcement. The vivid images of peace operations, brought into the living rooms of the western world by Cable News Network (CNN), have focused attention on

the effects of lethal force. The scenes often reveal one of the dilemmas faced by the UN commanders: how to use or adapt weapons, doctrine and organizations designed for high intensity warfare in Central Europe to peace operations worldwide. Lethal weapons can pose a paradox when used in nations where the UN is trying to restore peace and not destroy. This "force paradox" can consequently lead to mission failure.

Nonlethality is not just an academic proposal, it is already being used by organizations today. On a daily basis, police forces actively pursue nonlethal solutions when conducting their duties. Anti-terrorist organizations use specialised weapons to neutralize the terrorist without wounding or killing the hostages. On August 6, 1994, a French patrol boat attacked and subdued a Greenpeace vessel by employing water cannons and stun grenades in the Bay of Biscay.<sup>2</sup>

Part of the problem UN Commanders face is clear; peace operations function under strict Rules of Engagement (ROE). FM 100-5 reflects this when discussing *restraint*, one of the six principles of Operations Other Than War (OOTW):

The actions of soldiers and units are framed by the disciplined application of force, including specific ROE. In operations other than war, these ROE will be more restrictive, detailed, and sensitive to political concerns than in war. Moreover, these rules may change frequently. Restraints on weaponry, tactics, and levels of violence characterize the environment. The use of excessive force could adversely affect efforts to gain legitimacy and impede the attainment of the long-term goals.<sup>3</sup>

Operations that expect a hostile environment are invariably sourced with battalions designed and equipped for war. These battalions start as organizations equipped to fight at the high intensity level of

the spectrum. This is unavoidable today as practically all nations that had the resources built their militaries to fight and survive the type of conflict expected during the Cold War. Typically, they are not given any equipment designed for OOTW, leaving the commander with limited choices in applying military force; crudely put, using lethal force, or not reacting at all. Consequently, the ground commander would benefit from having more options, short of lethal violence. Is there a way to give a commander more options? This leads to the primary question: How and to what degree could nonlethality enhance the conduct of peace operations by military forces?

#### Background - Peacekeeping

Since 1947, the UN has participated in more than thirty peace missions, ranging in size and scope from UN Temporary Commission on Korea (UNTCOK) to the UN Observer group for the Verification of the Elections in Haiti (ONUVEH). The most successful missions were arguably those where the disputing factions themselves had solved the key issues and then called on the UN to assist, such as the United Nations Iran-Iraq Military Observer Group (UNIIMOG) after the Iran-Iraq war in August 1988. The last decade has seen a resurgence of more violent and complex enforcement operations as the UN has attempted to prevent and even intervene during wars. At the very least, it has found itself attempting to implement resolutions in countries where not all the factions or belligerents are cooperative. This is not new: The assertive actions of peacekeeping forces during the UN operations in the

Congo between 1960 and 1964 is an example where lethal force was used by UN troops.

It appears difficult or perhaps pointless to restrict a UN operation to a mandate that does not include resolution of the conflict. Originally, the UN Protection Force (UNPROFOR) in Bosnia was tasked to provide escorts for the UN High Commission for Refugees (UNHCR). UNPROFOR attempted to do much more than that; its activities included cease-fire negotiations and attempts to stop fighting by means of preventative troop deployments. Consequently, the term peacekeeping has grown to include more aggressive concepts, obscuring the boundary with peace enforcement.

The more aggressive approach to peacekeeping by the UN has placed ground commanders in difficult situations. Tasked to implement the UN Security Council Resolutions (UNSCR), the commander must often operate under tight restrictions, including detailed and specific limitations on the use of force. Forcing peace on two or three hostile forces with limited capability in equipment and restrictive ROE places soldiers involved in peace operations in life-threatening situations. Soldiers restricted by the ROE are unable to return fire or react in some cases until it is too late. Analysis of this issue and related material will highlight specific problems associated with lethal force and ROE, and show how nonlethality can help.

Some information and analysis will come from the reports on situations such as UNPROFOR peacekeeping operations conducted by the Canadian Armed Forces. An abundance of material is available, ranging from the personal reminiscing of Major General (retired) Lewis MacKenzie

(former UN Commander in Bosnia) to official reviews of Canadian Peacekeeping in publicly available literature.

The terms peacekeeping, peace operations and peace enforcement will appear frequently in this work. Peace operations are usually understood to embrace both peace keeping and peace enforcement. The controversy occurs in trying to separate what constitutes peace keeping and what constitutes peace enforcement.

This controversy becomes more than an academic exercise when discussing nonlethality, as will become apparent. This will be covered in more detail in chapter two, but for here, the term peace operations will be used to cover missions like those that occurred or are still ongoing in Somalia and Bosnia. This thesis is aimed at discussing nonlethality in the context of these kinds of difficult, dangerous missions that apparently transcend the definitions of peacekeeping and peace enforcement.

#### Background - Nonlethality

Potentially, nonlethality has much to offer UN forces in difficult situations. Nonlethality is not a new concept, as rubber bullets and tear gas have been used in the past to lessen casualties. Armies have trained to use minimum force in the conduct of Internal Security operations. What is new is the increased capability that new and emerging technologies can offer. This thesis will contend that the use of these new technologies will demand entirely different doctrine and organizations for some low-to-mid-intensity scenarios. As will be seen in later chapters, the training, maintenance, and use of new,

specialized equipment could have a heavy impact on those units already struggling to remain effective in their current warfighting mission essential tasks.

Conventional warfare still requires lethal force. However some areas, peacekeeping in particular, may benefit from equipment and doctrine that is designed to reduce casualties (in this case nonfriendly casualties) while still completing the mission. The importance of reducing nonfriendly casualties will become clear in chapter three.

Four students were killed during riots at Kent State University by the military forces attempting to control the situation. Immediately after, an increase in the number of nonlethal studies and inquiries was evident in research agencies and in the number of policy papers written. It is interesting that a technological solution was searched for to solve a discipline and command climate problem.<sup>4</sup> The requirement for crowd control options that did not kill was widely acknowledged. Civil authorities ordered research agencies to investigate possibilities in the nonlethal domain. The initial effort was not sustained and interest subsided. Lately though, the concept is receiving renewed attention from the academic community and some astute individuals and teams. The Tofflers in their new book War and Anti-War devote an entire chapter to the topic. Attorney-General Janet Reno sent Defense Secretary Les Aspin a letter dated June 3, 1993, requesting interdepartmental coordination on nonlethal technologies. The Defense Secretary responded by supporting the request.

The interest in researching nonlethal technologies should inspire an equal or greater amount of research in nonlethal doctrine.

It is arguably better if doctrine leads technology. While new and emerging technologies will always appear and force doctrine to change, it is probably more cost effective to explore doctrinal and conceptual ideas and then create or develop supporting technology. Restrictive budgets demand that priorities are set. This becomes especially important when research is already underway in one form or another. The point here is that the Army needs to start examining doctrinal concepts for nonlethality now to provide adequate direction to researchers, if only to stop wasteful exploration! Hopefully this thesis can help start the discussions required concerning nonlethality to focus research properly.

Areas of technology that have nonlethal implications are currently being reviewed and investigated. Aviation Week and Space Technology reported:

Los Alamos National laboratory and other defense research sites are developing a diverse arsenal of nonlethal or disabling weapons that may enable UN and other peacekeeping forces to defend themselves without triggering full-scale conflict.<sup>5</sup>

The long list of nonlethal devices, including exotic equipment such as low energy laser weapons, Electromagnetic Pulse (EMP) generators and polymer agents, implies that one must first determine what is to be accomplished (doctrine and tactics) and then select possibilities to develop. There are also some nonlethal weapons that exist today that could be used immediately, including water cannons, rubber bullets, paint pellets and so forth.

## Literature

Current literature on nonlethality is limited, but some conceptual work is starting to appear, such as Alvin and Heidi Tofflers' War and Anti-War. Articles reflecting military interest have appeared in US military journals like The Military Review and Airpower.

Major D. A. Morehouse wrote a thesis titled A New Strategic Era: A Case For Nonlethal Weapons in 1992 while attending CGSC. His work focused on the link between "the strategic setting, the national security strategy, the national military strategy, and the kinds of weapons and forces a nation develops to project power and achieve her strategic objectives."<sup>6</sup> He spends a large part of his research effort discussing this linkage in general terms without specifically relating it to nonlethality. He does not look at peacekeeping, or any of the possible connections with police work. This work will concentrate on peace operations rather than discussing nonlethality across the entire spectrum of conflict.

"GEnie" is a computer network service comparable to Compuserve or America On-line. One of the literally thousands of topics open as a round table is dedicated to nonlethality. By September 31, 1994, there had been 686 entries, ranging in size from one or two lines to five or six pages. Articles and draft papers have been uploaded for comment. While much of the content is not directly useful for research, many excellent ideas and thought-provoking concepts were put forward. This will be a major source for innovative ideas in this topic.

Many of the ideas and concepts for nonlethality used here were inspired by personal conversations and correspondence with Janet and



Chris Morris. They are arguably the leading thinkers and proponents of "Nonlethal Doctrine." They were the ones who originally awoke the author's interest, through Major Rich Groller, in this subject in 1992.

Toffler, in War and Anti-War describes them as:

Tough-minded and tough talking, Janet and Chris Morris are not experts on policing. They focus on military matters. They begin with no illusions about the morality or trustworthiness of nation-states. They won't be found among peace picketers carrying signs deploring war. Instead, until recently, one found them in the basement of the Pentagon or in the offices of the United States Global Strategy Council in Washington. . . . In a nutshell, they argue that a host of new technologies exist, or soon could, that might be used to defeat an enemy - and not just a suicide cult - with absolutely minimal bloodshed.<sup>7</sup>

The Morrises were an excellent source of leading-edge policy documents. They are mainly concerned with the strategic and national policy level, while this work will be focusing on tactical-level applications during peace operations.

#### Topic Relevance

We are not interested in generals who win victories without bloodshed. The fact that slaughter is a horrifying spectacle must make us take war more seriously, but not provide an excuse for gradually blunting our swords in the name of humanity. Sooner or later someone will come along with a sharp sword and hack off our arms.<sup>8</sup>

This quote from Carl von Clausewitz, the author of On War, seems eerily clairvoyant, as if responding from the past to the quote just prior from Toffler on nonlethality and bloodshed. Clausewitz appears to disdain attempts at removing or reducing primordial violence in the equation of war. The key though is that the types of operations a nation can expect to be involved in seem to be changing and increasing in occurrence. Modern deployments rarely come close to high-intensity

conflict, but rather they often require perseverance and restraint instead of high levels of violence, as is the case when trying to restore government and order to places like Somalia.

These cases of governments reduced to chaos may become more prevalent. Martin van Creveld highlights this point:

Just as no Roman citizen was left unaffected by the barbarian invasions, so in vast parts of the world no man, woman, and child alive today will be spared the consequences of the newly-emerging forms of war. Even in the most stable societies, the least they can expect is to have their identity checked and their persons searched at every turn. The nature of the entities by which war is made, the conventions by which it is surrounded, and the ends for which it is fought may change. However, now as ever, such communities as refuse to look facts in the face and fight for their existences will, in all probability, cease to exist.<sup>9</sup>

The future seems destined to become a mix of these smaller, obscure conflicts, many seeming to require military solutions short of war. This is important because in these kinds of operations casualties, both enemy and friendly, become key issues.

The United States National Security Strategy (NSS), released in July 1994, also reflects the change in global threats. The NSS clearly states that the primary mission of the United States Armed Forces is not peace operations. It does, however, emphasize the important role that the United States will have to play and the types of conflicts it may become involved in:

The dangers we face today are more diverse. Ethnic conflict is spreading and rogue states pose a serious danger to regional stability in many corners of the globe. The proliferation of weapons of mass destruction represents a major challenge to our security. Large scale environmental degradation, exacerbated by rapid population growth, threatens to undermine political stability in many countries and regions.<sup>10</sup>

The NSS continues to point out that United States leadership is essential and that, as the world's premier economic and military power, the United States will exercise global leadership.<sup>11</sup> This implies that United States forces, as the source of military power, must be prepared to back up other national instruments of power in these future conflicts. In other words, the United States could find itself in an increasing number of circumstances where restraint and perseverance become more important in solving the problem than the use of lethal force. Thus nonlethality could be effective in more situations.

The NSS indicates this type of problem is spreading, but does not try to quantify the trend. How bad could it become is a hotly debated item. Robert Kaplans article The Coming Anarchy gives us a taste of the most pessimistic viewpoint:

Sierra Leone is a microcosm of what is occurring, albeit in a more tempered and gradual manner, throughout the western world: the withering away of central governments, the rise of tribal and regional domains, the unchecked spread of disease, and the growing pervasiveness of war.<sup>12</sup>

These comments underline the relevance of a discussion on the military applications of nonlethality, especially given the role the western world may have to play. Assisting stability throughout the world in operations short of all-out war could very well be a growth business and the norm for military deployments in the twenty-first century. Nonlethality, then, could have a major role to play in using and controlling violence for ultimately peaceful purposes during the kinds of future military deployments that may prevail.

### Approach

The impact of the media, UN, and other outside agencies and factors form the essence for requiring a nonlethal capability in the first place. Chapters two and three will show how the tactical actions, magnified by the media, of peacekeepers (or even peace-enforcers) can have a critical impact at the strategic level. While nonlethal weapons may appear to be a tactical issue on the surface, it does in fact affect strategic and operational goals. This is not as strange as it first seems: Peace operations effectively reduce and in some cases even eliminate the separation between strategic, operational, and tactical levels. The study cannot limit itself to the tactical level.

Once again, this paper will examine the aspects of nonlethality and peace operations and then draw conclusions by looking at how different nonlethal responses apply to specific peace operations at battalion level. This examination, followed by analysis and original insight, will suggest answers to the primary question: How and to what degree could nonlethality enhance peace operations?

Chapter two looks at peace operations. Its aim is to derive specific activities that a unit could reasonably expect to conduct during a peace operation (especially in the grey area between peacekeeping and peace-enforcement). This chapter will focus on those tactical operations that would ordinarily require a violent response from the forces employed. Information for this chapter will come from the literature available, including doctrine. Specific incidents from current and past peace operations will also be used as examples, with particular emphasis on the Canadian experience.

Chapter three will deal with nonlethality. This chapter will derive categories of nonlethal responses. Nonlethality in general will be covered, taking a look at historical examples and those in use today. The future and potential of nonlethality will also be discussed. As already mentioned, there is little established work in this field. Chapter three will establish some order to emerging nonlethal concepts in preparation for the analysis in chapter four.

Chapter four will link the tactical operations from chapter two with the nonlethal response categories derived in chapter three. The different sections will examine and characterize the effectiveness of various nonlethal responses in specific situations. The Canadian experience in Somalia, Bosnia-Herzegovina, and Croatia will be the major source for discussion and thought for this evaluation. Other sources include other UN missions and military operations in general.

Chapter five will determine the relative merit of the various nonlethal responses across a selected spectrum of activities in peace operations and draw to a close by determining how nonlethality can enhance peace operations based on the analysis from the thesis.

#### Limitations

The study will be largely limited to peacekeeping applications of nonlethal means. Time and space did not permit exploration of the full spectrum of peace operations. The strategic implications of having a percentage of the professional forces capable of both lethal and nonlethal doctrine (or perhaps only one of the two) will be discussed only briefly in chapter five.

It is difficult to limit the discussion on technologies. For instance, surveillance and information systems alone could be considered a part of nonlethal technology, but this would expand the definition too far for the purposes of this paper. Limited collateral damage implies surgical-like precision which in turn implies the best and most timely information systems (including communications, surveillance, and intelligence in this context). The entire paper could be constructed on how to dominate less technologically adept forces in a peacekeeping environment by using the best of space-based surveillance and communications assets tailor-made for use down to the lowest level. This would not effectively answer the primary question this thesis is dedicated to solving. Consequently, this paper will not cover issues related to information and surveillance.

#### Summary

This chapter has set the stage for exploring the military applications of nonlethality in more detail. The fact that little formal work exists in this area is reason enough to conduct the research. The potential increase in peace operations and other OOTW requires new thinking, new doctrine, and new Tactics, Techniques and Procedures (TTP), which are being developed. Whatever is written will still require commanders at the tactical level to run operations under restrictive ROE. Into this setting come new technologies and concepts that could add complementary alternatives to the use of lethal force.

Nonlethality is an emerging concept that could provide valuable options to commanders operating with restrictive ROE. It is not a new

concept, but little effort has been made to explore its potential for peace operations. Chapters one to three will provide a background on nonlethality and peace operations. Chapter four will analyze the potential and determine the response to the thesis question: Can nonlethality enhance peace operations?

CHAPTER 2  
PEACE OPERATIONS

Peacekeeping is not a soldiers job, but  
only a soldier can do it.

Dag Hammarskjold, FM 100-23<sup>13</sup>

Introduction

The primary focus of this chapter is to derive actions and tasks for examination in chapter four. Peace operations, like any operation, can be broken into sets and subsets of actions. What is required are those actions that are conducted by troops during peace operations that require the use of lethal force. Once again, the primary issue will be peacekeeping, but in the context of missions that border on peace enforcement.

This chapter will look in more detail at the meaning and importance of the definitions under peace operations. This will be done to obtain an impression of the spectrum being considered for the use of nonlethal means during peace operations.

The current size and type of unit used as the main tool in a UN mission will be discussed briefly to obtain some useful perspectives. The implications of selecting units and more specifically soldiers trained for high-intensity warfare will become apparent.

The importance of peace operations and the application of force during UN operations will also be examined in more detail. This is done



to highlight some traditional areas of disagreement between the UN and the military concerning the conduct of operations. ROE will be considered as the written expression of the tight control on violent responses required when conducting UN missions. The increase in size, complexity, number, and visibility of missions will be brought forth to show the increased opportunities and need for nonlethal weapons.

A literature review will follow and will form the core of this chapter. By examining the current literature on peace operations, this chapter will derive the actions that could require the application of lethal force by a peace operations unit. Once completed, this portion of the chapter will then narrow down these actions and tasks to a limited group of categories suitable for use in chapter four.

#### The Definition Game

Definitions are important for two reasons. First, they can provide an insight into how an institution views an issue. Among other things, the peace operations definitions will show that the UN places a great degree of emphasis on how force is used. Secondly, the definitions will be used throughout this thesis.

The following definitions have been extracted from the US Army's Field Manual 100-23 Peace Operations (FM 100-23) released in November 1994. This revised version is new and very different from previous drafts. It will provide the cornerstone for the development of the United States Army peace operation TTP. The definitions were selected from this source above all others because it will set the tone for years to come with respect to United States Army attitudes towards

peace operations. It is important to note the differences between the definitions. The key tends to be how significant the application of force is in resolving an issue. Closely related, the use of diplomatic and military power are also central to the definitions. The three most important definitions are quoted below:

**Peace operations** an umbrella term that encompasses three types of activities; activities with a predominantly diplomatic lead (preventive diplomacy, peacemaking, peace building) and two complementary, predominantly military activities (peacekeeping and peace-enforcement).<sup>14</sup>

**Peace-enforcement** the application of military force or the threat of its use, normally pursuant to international authorization, to compel compliance with resolutions or sanctions designed to maintain or restore peace and order.<sup>15</sup>

**Peacekeeping** military or paramilitary operations that are undertaken with the consent of all major belligerents; designed to monitor and facilitate implementation of an existing truce and support diplomatic efforts to reach long-term political settlement.<sup>16</sup>

Peacekeeping requires consent, implying diplomatic effort, but cannot resolve the political problem. Consent of the belligerents is required, unlike peace enforcement which is a combination of political and military instruments of power to compel belligerents to cease hostilities and initiate negotiations. Both peacekeeping and peace-enforcement obviously merit exploration for nonlethal weapons. It is very hard to draw a line between the two in real life. UNPROFOR and operations in Somalia are testimony to this.

The diplomatically oriented peace operations are less obvious in their relevance to nonlethality. Peacemaking is considered a diplomatic effort. The military is usually not directly involved but

may reinforce success indirectly. Perhaps more importantly, the use of force during peacemaking operations could have dire consequences for the mission as a whole.

Peace-building helps establish and strengthen political and social institutions for the peaceful resolution of disputes. Peace-building may work before a conflict erupts into violence or after a cease-fire.<sup>17</sup> Peace-building is, essentially, the same as nation assistance (formally nation building). There are many instances when such missions were executed concurrently with combat operations (Panama and Somalia for example). As in peacemaking, the use of force can directly affect the use of diplomacy. This point is raised only to establish that nonlethality has very broad applications.

At least three key issues, from the perspective of this thesis, are found buried in these definitions: impartiality or neutrality, the use of force and the military-diplomatic power relationship. All three of these issues are intimately related. The use of force directly influences neutrality and ultimately how diplomacy can be used. For example, if violence is used at the tactical level by UN forces to resolve an issue, one side of the warring factions may view the UN forces as biased. This in turn could make the use of diplomatic means very difficult.

The interrelationship mentioned above is important to this thesis. The use of nonlethal means at the tactical level to resolve a conflict like the example given may help maintain at least the perception of neutrality, thus preserving diplomatic options. The use of force and its impact will be covered in more detail in the section

entitled "UN Missions and Force". The next section, concerning unit selection, looks at the use of lethal force from some other perspectives.

#### The Use of Lethal Force

The use of lethal force is one of the keys to success for units conducting peace operations. This portion will look at how and what type of units are selected for missions, how missions are increasing in size, number, complexity, and visibility, and how rules of engagement are used in missions. The common thread throughout this portion will be the use of lethal force and its impact on peace operations. One must have an understanding of the implications of using lethal force before looking at conceptually replacing it with nonlethal force.

#### Battalion Level Operations

This section will show how peace operations unit selection, especially from a training perspective, impacts on the use of force. Most nations, outside of typical observer missions, deploy forces or source UN organizations with battalions and/or soldiers that were originally equipped and trained for combat. Thus they arrive armed and ready for violent responses. Nonlethal equipment and training could help the transition from regular preparation for high intensity operations to deployment on peace operations. This will be even more significant if the battalions trained for war are continually selected for peace operations, as is the case in Canada where a battalion can reasonably expect to deploy on a peace operations mission every two years.

The battalion is likely to remain the building block for peace operations bordering on peace-enforcement in the near future, at least according to American doctrine. The latest draft released for comments of Field Manual 100-20 (FM 100-20) (the current edition was published in 1990), the United States Army manual that deals with OOTW, discusses the issue of what can be reasonably expected to remain the building block unit for forces involved in peace operations:

The combat units are usually battalion size, depending on the commitment made by their national authorities. The United States does not organize military units especially for peacekeeping operations. Instead, regular infantry battalions serve in this role. They require a minimum of special training in preparation for the mission and elements may be added or deleted to meet mission requirements.<sup>18</sup>

A unit that has been organized, equipped and trained for war will be extremely capable of using force: it is the essence of its existence. It has been specifically designed to resolve issues with maximum lethal force. This likely increases the probability of a unit using lethal force to settle an issue during peace operations: it will at least consider it as an option, if only momentarily. It is a testimony to the professionalism of most nation's soldiers that so few incidents do lead to the use of violence during UN missions. The temptation to use force becomes even harder to resist for a regular unit when it has participated in a highly frustrating mission over an extended period of time.

The United States is not the only nation to focus at the regular combat arms battalion level for peace operations. Canada has typically deployed combat arms units at the battalion level.<sup>19</sup> The current missions in Bosnia and Croatia are no different, with two

separate Canadian combat arms battalions serving in theatre.

Practically all national deployments are arranged by battalion in UNPROFOR. It is not just United States doctrine that deploys battalions equipped and trained for combat; it is a global trend.

This paper will concentrate primarily on examining the potential of nonlethal weapons deployed with a regular battalion. No doubt some technologies may require a specialist section to be trained and equipped: this must be noted when discussing the merits of that technology.

This section has established that battalion sized combat arms unit selection is an important factor when discussing nonlethality, especially with training. It has raised again the issue of the potential for the use of force, given that regular units are typically selected for peace operations. The next section will examine the importance of controlling violence in UN missions from current and historical perspectives.

#### UN Missions and Force

This next section will shed some light on the different perspectives when using force in UN Missions. An experienced UN diplomat or military individual will avoid the use of force whenever possible during peace operations. A battalion commander new to peace operations (and his subordinate leaders) may be more prepared to resort to violence to solve immediate issues. This difference in perspective deserves inspection because nonlethality could offer a stepping-stone

between the premature use of violence and too much emphasis on diplomacy and mediation.

The historical perspective shows us the roots of the current UN philosophy. The principle of avoiding the use of lethal force except in self-defense was first defined by Secretary General Dag Hammarskjöld in 1956 based on the idea of a peacekeeping force from Lester B. Pearson (then Secretary for External Relations of Canada). The UN would act as mediators and observers to assist factions in solving their own difficulties. Peacekeeping would only exist when the combatants granted permission for or requested the mission. Mediation and diplomacy would be used to help the participants re-solve their problems.

Operations in the Congo saw a departure from this principle in July 1960. With twenty thousand troops, it was easily the biggest and most ambitious peacekeeping operation the UN had ever attempted. In fact, it can be argued that this mission crossed the line into peace-enforcement. During this operation, the UN used military power to force its will on the warring factions. Military force included such operations as closing down the capital's airport and capturing the commercial radio station. The UN mandate was widened to include deporting all foreign mercenaries and the use of force to prevent civil war. Lethal force was used against the factions, and this caused tension not only in the country but worldwide.<sup>20</sup>

Arguably *Opération des Nations Unies au Congo* (ONUC) was successful, but at a great cost in resources, reputation and even lives. The size and complexity resulting from the broad interpretation of the mandate and the use of force were not fully appreciated at the time.

The death of Secretary-General Dag Hammarskjold in a plane crash while visiting the mission was a significant loss to the UN. The cost of success confirmed the wisdom of the UN's initial caution when using force.

The aversion to the use of force remained ingrained. The principle of self defense was widened by Secretary-General Kurt Waldheim in 1973 to state that "self defense should include resistance to attempts by forceful means to prevent UNEF II from discharging its duties under the Security Council's mandate." <sup>21</sup> Occurring a decade after ONUC, UNEF II<sup>22</sup> was as close as the UN was willing to go to force conflicting factions to meet UN established goals and agendas. Avoiding the use of force was a key method to stop an operation from spiralling into an impossibly complex missions.

Waldhiem's interpretation arguably set the stage today where force could be used by UN Commanders in areas such as Bosnia and Somalia. The wide definition of what constitutes self defense can be interpreted in different ways when the issue is viewed from the different perspectives on the use of force. Put in another fashion, the wide interpretation gives the tactical commanders more situations where they could resort to force, making the issue much more complex. Consequently, given that the UN is again tackling more ambitious missions, there are now more situations to which nonlethal weapons could be applied.

It is worth noting that it took thirty years for the UN to again attempt operations of a scope and magnitude of ONUC. Not all of this wait can be attributed to UN Security Council politics during the



Cold War (the frequent use of vetoes and the resulting statements in the Security Council while NATO and the Warsaw Pact used the UN for their own interests certainly did slow the process). The UN has started looking again at more forceful solutions coming under the category of peace enforcement. Nonlethality may be a way to meet the requirements to some degree, especially with the number of missions increasing.

The UN appears to be faced with an increase in the number of peace operations. The last few decades have seen the heightened interest in human rights. Some of this can be attributed to the rise of global news agencies with mass audiences, such as CNN and the British Skynet news. With reporters, cameras and satellite hookups, the media has helped bring the plights of many around the world to the front. The public attention seems to inevitably lead to a military deployment, as in Somalia and Rwanda. This relatively new attention on peace operations from the public could conceivably continue to maintain the high numbers of peace missions required. The more missions there are, the more sense it makes to start developing specialized doctrine and equipment that meets specific peacekeeping requirements.

As important, the conduct of those carrying out the peace operations is also closely watched by the public. This kind of attention has a great impact on how a UN commander can use force to meet his mission requirements. Eastern values and human rights become key to maintaining public (home) support for the peace keepers. William Durch points out that: "Protecting individual human rights while sustaining or rebuilding war torn countries may be peacekeeping's new calling, added to its traditional functions."<sup>23</sup> He sees the potential for a rise

in ethnic conflict in the emerging world.<sup>24</sup> This implies there will be more situations where UN forces will be required.

This section has shown so far that the number, size, complexity and visibility of UN Missions has increased. All of these factors, in particular visibility through the media, have subtly changed the ground rules for deploying regular combat arms battalions to conduct these missions. As a result, the market of opportunities within which to employ nonlethal weapons has grown considerably.

The use of force in UN missions will likely always be a contentious issue between those employing the diplomatic instruments of power and those entrusted with implementing the military portion of peace operations. The increasing number of operations will only add to the issue. The UN philosophy regarding peacekeeping is typified by F.T. Liu's comments:

The principle of nonviolence sets peacekeeping forces above the conflict they are dealing with: violation of the principle almost invariably leads to the peacekeepers becoming part of the conflict and therefore part of the problem.<sup>25</sup>

This has held true throughout missions, and the current effort in Bosnia appears to add strength to this perspective. The use of force has been almost unacceptable at the strategic and operational levels of operations in UNPROFOR where diplomacy and mediation are king. This forms the "force paradox" common to many missions. The ground commander needs to use force to implement the UN mandate and influence the events in theatre at the tactical level. The use of force then has such a significant impact at the operational or even strategic level that the

diplomatic instrument of power, probably the most important in peace operations, is reduced or even rendered useless.

The impact of nonlethality on the "force paradox" will be examined later, starting from this point, in chapter four. The vital impact of the use of lethal force in peace operations, especially given the increase in size, number, complexity, and visibility of mission, has been established. It is now time to look at the mission commanders principal means of controlling the use of force: the rules of engagement.

#### Rules of Engagement

The principle means used to control force are mission-wide Rules of Engagement (ROE). ROE are prepared by the military commander, in conjunction with the political and legal council of the sponsoring organization. Standing UN ROE typically authorize the use of force in self defense only. They can be very detailed and specific<sup>26</sup> or open to interpretation. Either way, they are an important consideration for the commander.

As mentioned, the specific detail of ROE can cause problems at the soldier's level. No ROE can predict every circumstance. This can lead to hesitation when using force in a valid situation that was not clearly covered or perhaps even mentioned in the ROE. Perhaps more importantly, the ROE is written in clear "shoot here/do not shoot here" terms: real-life situations often fall in between with no clear-cut delineation. The following generic example illustrates this point: Soldiers guarding a point are confronted by a crowd. The crowd pushes

closer. Limited physical contact occurs as the mass of the crowd pushes front members forward. Contact slowly increases, but at no time rising sharply enough to warrant the transition to the use of force. The example concludes with the soldier stripped of his weapon and at the mercy of the situation.

The point of this example is not to imply that ROE are inappropriate, but rather, they are essential to the success of peace operations despite the inherent problems mentioned above. They become crucial during multi-national operations. ROE are needed to coordinate the responses to situations by individual nations from different cultures and levels of training. Different responses can seriously undermine the entire effort. If one nation acts more aggressively than another, it can become a target for retribution or cast doubt on the impartiality of the mission.

There is a grey area between the use of force and no action. The dilemma is that ROE can be rendered ineffective by this grey area. This is an important detail because nonlethality could provide means to supplement the ROE, providing a more effective scale of responses. During the Cold War it was decided that mutually assured destruction was not the only answer, so a strategy of flexible response was adopted. During peace operations, it may be that lethal force is not the only answer, so a graduated response using nonlethal weapons may be appropriate.

## Literature

This portion of chapter two will examine available literature and will focus on determining what tasks requiring the use of force are needed during peace operations. Any other trends pertinent to this thesis will also be discussed. The review will study military documentation and published works and will examine what current literature does and does not say about nonlethality in peace operations.

### Military Documentation

The United Kingdom's (UK) FM Volume V All Arms Tactics, Special Operations and Techniques Part 1 Peacekeeping Operations is the British equivalent of FM 100-23. This manual departs from the United States structure by dealing only with peacekeeping as opposed to peace operations in general. Unlike other documents, it takes the time to draw a hard line between peacekeeping and counter insurgency.<sup>27</sup> This is only mentioned to indicate that counter insurgency operations have probably influenced British thinking with regard to controlling force in any operation. Given the civilian interaction inherent with counter-insurgency, one would think that nonlethal weapons as a concept would have been considered in this arena.

The UK manual focuses on the UN philosophy of acting impartially and only using force in self-defense, conforming to the general principles espoused by the UN.<sup>28</sup> Even though it is a detailed document, it does not discuss nonlethality. It does look at alternatives to using lethal force while discussing passive and active force.<sup>29</sup> Here, passive force is not an acronym for nonlethality but

instead deals with passive means, such as using trucks to block avenues to avoid the use of physical force.

The section on training was useful for deriving functions particular to battalion level operations. The following were extracted from chapter six:

1. Security of personnel, information and buildings
2. Imposing a curfew
3. Crowd dispersal
4. Patrolling
5. Neutralizing and lifting mines
6. Movement control: The procedures for manning permanent check-points, establishing temporary ones, and closing routes.
7. Interposition operations<sup>30</sup>

The British manual, in summary, was useful for providing the spectrum of activities in, specifically, peacekeeping operations. Given the British background of counter-insurgency operations in Northern Ireland, it is interesting that nonlethality is not mentioned in this peacekeeping manual.

A Russian Manual, with the translated title of UN Peacekeeping Operations: Organization, Conduct and Logistics, Functional Duties of Personnel was subtly different from the western peace operation doctrines reviewed. The principle of the use of force only in self-defense was not discussed until chapter 3.3, a full 122 pages into the book. This may indicate that the Russians view the use of force with perhaps less aversion than other nations. Russian attempts to quell the rebellion in Chechnya starting in December 1994 may support this. This

point is brought out to emphasize the importance of ROE established earlier in this section when dealing with multinational operations. This bears on nonlethality, indicating that other nations that rely more heavily on force to solve problems may have an even greater need to use nonlethal weapons during peace operations.

The Russian manual also went into more detail in explaining what self-defense was:

This would include attempts at forceful entry into UN positions and their environs by one party for use as a fire base against the others and attempts by force to disarm UN troops.<sup>31</sup>

This work was closer to a traditional standard operating procedure (SOP) manual typically published for a specific unit, battalions or larger, as opposed to a manual dealing with doctrine and concepts. It did not discuss nonlethality.

Several useful categories or tasks can be derived from the Russian peacekeeping manual, echoing and reenforcing activities mentioned in other manuals:

1. Checkpoints/roadblocks, including searching suspicious vehicles (A manned point used as a means of controlling movement and checking vehicles and pedestrians, in order to enforce control measures, orders and regulations.)
2. Patrolling
3. Operational investigation (The formal process of gathering the information at the site of an alleged violation, in response to a complaint submitted by the parties.) and inspections
4. Security and control of crossings/lines
5. Searches for, disposal of, and familiarity with arms and

equipment

6. Limitation of incursions and raids

7. Supervision of refugee camps<sup>32</sup>

The Canadian Forces Publication 301(3) Peacekeeping Operations, First Draft, June 1992 includes peace enforcement under peacekeeping operations. It also uses the term peacemaking in the same context as peace enforcement.<sup>33</sup> It follows somewhat the British style by drawing a hard line between peacekeeping and peace enforcement, leaving the discussion of peace enforcement tasks for the combat related manuals of the Canadian Forces.<sup>34</sup> Once again, no mention is made of nonlethality. The terms active and passive violence are used, but in the same context as British doctrine. This manual does detail tasks expected during peacekeeping operations, confirming those mentioned above. No new tasks were evident.

Two United States Army manuals under development deserve attention in this chapter. FM 100-20 is an umbrella document that discusses OOTW, and FM 100-23 is a branch of FM 100-20 that deals with a sub-set of OOTW, namely peace operations. These manuals were very useful for the clear and concise definitions used earlier in this chapter.

FM 100-20 is currently undergoing a major review as a draft document released for comments in September 1994. As such, it has yet to formally become part of United States doctrine. Chapter three is dedicated to peace operations. The manual classifies the environment, derived from FM 100-5 (the start point for all United States Army doctrine), into three broad categories: peace, conflict and war.<sup>35</sup> It



also discusses how the various instruments of national power are employed (military, political, economic, and informational). It is useful for understanding how American doctrine views the use of instruments of national power. For example, if a country is relying mainly on political power to solve the issue, even though military forces are engaged, it is not war. If the use of military power is the primary method of conflict resolution, it is likely to be classified as war. If this distinction between war and not-war becomes doctrine, nonlethality may be essential as a concept because it could increase the spectrum of options available before a crisis would actually be considered war. This point starts to stray away from the issue of nonlethality and peace operations, so will not be pursued here in this context. It is useful to understand though, that nonlethality may have some roles to play outside of peace operations.

FM 100-20 comes the closest to discussing nonlethality while discussing the fire support Battlefield Operating System (BOS): "The fire support BOS includes incapacitating agents and psychological operations."<sup>36</sup> This sounds like nonlethality may be an issue here but does not go far enough, particularly in the way nonlethality is being discussed in this thesis. No further explanation or definitions were forthcoming in FM 100-20.

FM 100-20 lists several activities associated with peacekeeping:

1. Separation of belligerents
2. Patrols: foot, vehicle, air
3. Roadblocks, "firmness with discretion" stop and search
4. Forced entry/movement

5. Convoy escort
6. Guard duty and perimeter defense
7. Demobilizing armed elements
8. Cordon and search<sup>37</sup>

FM 100-23, issued for the first time in November 1994, is the definitive document for United States peace operations doctrine. This manual follows on in more detail from chapter three of FM 100-20. Included as an example in the manual was a task table derived from a 10 Mountain Division chart during UNITAF operations in Somalia. This table is useful because it lists key elements by BOS and provides the following extracts:

1. Intelligence: conduct reconnaissance.
2. Maneuver: establish checkpoints and roadblocks, conduct convoy security operations, and conduct zone reconnaissance to disarm locals.
3. Fire Support: Show of force fly-overs, counter-fire coverage.
4. Force Protection: Provide security for soldiers, assist in establishing Somali police force.<sup>38</sup>

#### Books

The literature reviewed supported the basic concepts found in the military doctrine. Without exception, all the literature reviewed focused on impartiality and the use of lethal force only in self-defense. Again, none discussed the use of nonlethality. It is almost as if there is a physical blind-spot associated with the topic. Two

works will be used to indicate the thrust and trends typical of the many works available. The bibliography includes the larger list of works reviewed.

F. T. Liu's work, United Nations Peacekeeping and the Non-use of Force, discussed the subject of force in detail but did not discuss nonlethality, despite the title. Its aim was to point out that the principle of non-use of force except in self defense is central to the concept of UN peacekeeping. Liu explains:

The principle of non-use of force except in self defense is closely linked with consent. The UN peacekeeping operations can be set up in areas of conflict only with the consent of the parties directly concerned. A fundamental assumption is that these parties, in accepting a UN peacekeeping operation, commit themselves to cooperating with it and will honour this commitment.<sup>39</sup>

Liu does not discuss peace enforcement, but focuses his work on peacekeeping operations.

William Durch in The Evolution of UN Peacekeeping does not dismiss peace enforcement but instead feels that the "UN needs to walk before it can run"<sup>40</sup>; the UN should master peacekeeping first. He also believes that peacekeeping "is primarily a political task that uses military symbols and some military tools, including force in certain circumstances."<sup>41</sup> His last comment on the use of force is about as far as any of the texts examined are willing to go in condoning the use of force.

The literature reviewed provided good background for developing the portion on the use of lethal force in this chapter. Once again, the biggest disappointment was the almost total lack of discussion of nonlethal weapons in peace operations. The continual focus on avoidance

of the use of lethal force does seem to imply though that the use of nonlethal weapons could be acceptable to the creators and guardians of UN peace operations concepts.

Scholarly journals like the Journal of Conflict Resolution and Low Intensity Conflict and Law Enforcement, falling between books and the press, were also reviewed, but offered nothing new for the purposes of this thesis. They supported the trends apparent above.

#### Popular Press

The documents mentioned so far have not covered all activities that may require a forceful response during a peace operation. Comments from newspapers have already played a part in this chapter and the introduction. Typically, newspaper and magazine reports are concerned with the events and the human dimension surrounding the situation without exploring the use of force or differentiating between peacekeeping and peace enforcement. Even so, it is interesting that the press has reported some activities in today's missions, such as retaliation, which are not captured or discussed anywhere else.

Peacekeeping and peace enforcement are timely subjects today, if the media is any indication. Practically every day one can find a news article about Bosnia and Croatia.<sup>42</sup> This keeps the topic of peace operations firmly in the public eye for sustained periods. This supports previous comments on the importance (national focus) of future missions, given the continual attention they are getting.

Demonstration of force, namely attacking another target in response to unfriendly actions, has been an activity reported by the

media in the UN mission in Bosnia. This is a relatively new action. The nonlethal bend is particularly interesting, as mentioned in the following excerpt:

Two British Jaguars each dropped a 1,000 pound bomb on the target, and a United States A-10 fired a 30 mm Cannon . . . . They said the target of the attack - an unmanned tank - was destroyed. Gen. Bertrand de Lapresle, commander of UN troops in Bosnia and other former Yugoslav republics, told Cable News Network that an empty tank was purposely targeted so as not to cause loss of life.<sup>43</sup>

This was not a singular situation; similar NATO attacks happened as well in the UN safe area of Gorazde. Demonstration of force could reasonably be considered as a part of the UN mission. Another interesting point is that one thousand pound bombs are not usually used in the precision, nonlethal role of eliminating one specific tank. Evidently, they were the best available tools for the job at the time, but there may be better ways of retaliating and not causing loss of life.

On November 20 1994 NATO launched its largest offensive operation ever. Around fifty aircraft attacked a Serbian airfield in Croatia in an attempt to stop Krajina Serb support of the Bosnian Serb attack on Bihac.<sup>44</sup> While not stated, it is reasonable to assume that minimizing casualties was as significant here as the demonstration of force incident mentioned in the preceding paragraphs. This is important because the UN still needs to negotiate with all sides after these incidents occur. This activity, denial of the use of aircraft, can be broadened to the denial of use of major weapon systems. NATO threats, through the UN, to attack artillery and tanks within the twenty mile exclusion zone around Sarajevo support this extension. Arguably this

was done at the operational level because the deployed battalions had no controlled way to neutralize the artillery.

#### Summary of activities

The literature review has covered areas that have developed tasks and actions which can be associated with peace operations. The list of activities that follows was selected by applying three criteria: activities must apply to battalion level operations; activities must require a violent response; and the activities must be separate and distinct from each other (some overlap is inevitable, but should be avoided as much as possible). The activities are:

1. Security Operations. This includes force protection, and security of personnel, information and buildings. The nature of current operations, such as protection and supervision of refugee camps in Rwanda, does not restrict this activity to security of strictly mission forces. This becomes very important when trying to identify friend and foe before using lethal force during such tasks as guard duty or perimeter defense.

2. Crowd Operations. Few missions are restricted to a rural environment. The crowds encountered during operations in Mogadishu is one example of what can be expected in urban peace operations. Crowd operations can be broken down further into activities such as imposing a curfew, crowd dispersal and assisting police forces.

3. Patrolling. This activity is common to almost any peace mission and can be considered one of the vital aspects of a mission. Patrolling includes, but is not restricted to operational investigations

and inspections, searches for and disposal of arms and equipment, conducting zone reconnaissance to disarm locals, demobilizing armed elements and cordon and search. The most common thread throughout these activities is the act of conducting reconnaissance.

4. Movement Control. Forces must be able to manoeuvre to carry out a mission. This is true for both the peace operation unit and the opposing factions. Controlling movement becomes important in the conduct of the mission. This includes manning permanent check-points, establishing temporary ones, and closing routes. Related activities include searching suspicious vehicles, security and control of crossings/lines and roadblocks. Neutralizing and lifting mines could also be considered here.

5. Interposition Operations. Many operations consist of forming a buffer zone between belligerents. Operating between opponents who still may be resorting to force and maintaining neutrality obviously has its challenges. Related activities include separation of belligerents and the limitation of incursions and raids.

6. Convoy Escort. Forces must be able to resupply to carry out a mission. As in other activities, this function is not restricted to escorting mission forces, but could include other participants. The convoy may be for logistics and administration, or be conducted as the heart of the mission, as in humanitarian relief operations in Somalia and Bosnia.

7. System Denial. Destruction or denial of belligerent offensive capabilities could well be required, as indicated in previous sections of this chapter. This includes activities such as a show of

force, counterfire coverage, demonstration of force and major weapon systems denial. This activity may be the most important activity from a nonlethal perspective as its use may provide the ability to conduct the other six activities.

### Conclusion

Chapter two has covered many different aspects of peace operations with regard to the use of nonlethal weapons. The definitions helped set the stage with the development of the relationship between force and the success of the peace operation. The current philosophy for selecting, equipping and training units showed how the use of force is a fundamental issue for peace operations. The portion on the use of lethal force refined this, showing how the increase in size, number, complexity and visibility of peace operations makes the issue of the use of force even more crucial to the success of the mission. The final portion about ROE as the control measure for force tied in all the aspects and helped set the stage for including nonlethality in the discussion in subsequent chapters.

The force paradox inherent in peace operations underlines the importance of studying nonlethality. It will be an issue revisited in subsequent chapters.

Chapter two also determined seven separate activities involved in peace operations. These will be used in chapter four for analysis with the nonlethal categories that will be developed in chapter three.

The term nonlethality and nonlethal weapons has been used throughout this chapter. Some definitions and examples were given in



chapter one, but not enough. Now that a backdrop for peace operations has been established, it is time to look at nonlethality, the philosophy and the technologies available, in much more detail.

## CHAPTER 3

### NONLETHALITY

We are at a point in history - the last half century, say - when the maximization of lethality has reached its outer limits: the point at which nuclear arms could, at least in theory, threaten the very existence of the planet . . . when the push for added lethality in a weapon of mass destruction defeated itself . . . when both nuclear superpowers actually concluded that their strategic weapons were, if anything, too lethal. It is, in fact, the point of dialectical negation, the moment when history begins to reverse itself.<sup>45</sup>

Alvin Toffler, War and Anti-War

#### Introduction

The aim of this chapter is to derive categories of nonlethality for examination in conjunction with the activities fundamental to peace operations determined in the previous chapter. Current articles and books will be evaluated for information on nonlethality that will help establish these categories.

This chapter will explore the idea of nonlethality in more detail, examining various terms used to describe the subject. It will look at the importance of nonlethality and examine some technologies and methods used today. The chapter will also investigate some emerging technologies to evaluate the potential for the future. At the conclusion of this chapter, the ground work will be set for analyzing

nonlethality in peace operations with some specific cases in chapter four.

### Definitions

Examining the few definitions currently available can provide us with some valuable insights about nonlethality. Before looking for categories of nonlethality, the boundaries of the subject must be delineated in more detail. Once the limits are established, the categories will make more sense and will fit the requirement for the next chapter.

The terms selected for use throughout this document are nonlethal weapons and nonlethality. To this point, we have used the definitions taken from the first quotation in chapter one:

A non-lethal weapon is an instrument used in combat which is designed to achieve the same tactical or strategic ends as lethal weapons, but which are not intended to kill personnel or inflict catastrophic damage to equipment . . . . Nonlethality is a concept of warfare which includes non-lethal weapons and their consideration in both tactics and strategy.<sup>46</sup>

The definition in the previous paragraph includes the avoidance of catastrophic physical damage to equipment in addition to killing personnel. This is worth noting, as this thesis will look at some nonlethal weapon concepts whose sole aim will be to cause catastrophic physical damage (as in damage to equipment, facilities, etc.) without killing personnel. The next part of this chapter will go into some detail concerning why avoiding killing personnel is important. This portion will also show that the same logic will not apply to avoiding the destruction of equipment. The key, when attacking weapon systems, is to avoid collateral damage. In this light, the definition above does

not suit the application of nonlethality to peace operations because of this inclusion of equipment.

The definition that this paper will use is: a nonlethal weapon is an instrument used in combat which is designed to achieve the same tactical or strategic ends as lethal weapons, but which are not intended to kill personnel or cause unacceptable collateral damage and nonlethality is a concept of warfare which includes nonlethal weapons and their consideration in both tactics and strategy.

Another key to the boundary set by this definition is the phrase "to achieve the same tactical or strategic ends as lethal weapons". Without this connection to lethal weapons, the subject of nonlethality could be broadened indefinitely to include most of what armies do, "from operating transport to washing truck tires."<sup>7</sup>

A good argument can be made that nonlethality should only be applied to attacking people. What relevance does the term nonlethal have towards an inanimate object? While one can not "kill" a weapons system in the strictest sense of the word kill (it is, after all, already dead), one can control the force used to destroy it. This is done for two reasons: to avoid killing the crew and to limit collateral damage. This is why this work will include attacking equipment as well as personnel under the heading of nonlethality.

As indicated, nonlethality can be a difficult subject to put boundaries on. While it is not a new concept, it is a relative newcomer on the doctrinal scene. Like any emerging area, it does not have the advantage of years of analysis and critical thinking to authoritatively

describe the thought. That being said, military organizations are taking tentative looks at the subject.

DoD appears to be wrestling with different terms as various departments issue statements or doctrine concerning the subject. This can make collecting information on the subject difficult and time consuming. Most United States Army statements, such as TRADOC PAM 525-5 Force XXI Operations, prefer the terms nonlethality and nonlethal weapons over others, such as disabling or less-than-lethal systems. Care must be taken when reviewing current works on doctrine because more often than not the term "nonlethal" is used to distinguish between attacking a target with electronic warfare vice destructive fires. In other words, "nonlethal" is meant to imply suppressive or disruptive attack vice destructive. Nonlethal fires used in this context represents the most frequent army use of the term.

The Air Force, perhaps coming from an equipment oriented perspective, may be steering towards the term disabling systems, as is implied in a recent article in the Airpower Journal:

Sometimes they are referred to in the press as "nonlethal" or "low-lethal" weapons, but the Department of Defense (DoD) has adopted the term *disabling systems* for this class of weaponry.<sup>48</sup>

The article states that the term disabling system has been selected by the Office of the Secretary of Defense (OSD) *Non-lethal Strategy Group*. The term "Non-Lethal," however, still appears in the organization's title. The article is discussing almost the same issues and philosophies covered in this paper, using a different term, with a slightly different perspective. It tended to focus on attacking equipment and systems, like enemy air defense radar.

This portion of chapter three has set the boundaries for the thesis on nonlethality. Already we can see the broad subject of nonlethality dividing into smaller categories, resulting from the distinction between neutralizing personnel or the equipment they are using. This will help in the final part of this chapter when the categories of nonlethal weapons are selected for use in chapter four. The next section will take the subject from the point of definition to a more detailed look at the relevance of nonlethality.

#### Why Nonlethality?

The relationship between the media and global cultures and values will set the stage for a look at the historical development of the topic. This will be followed by an examination of the impact of nonlethality at the strategic level with emphasis on how peace operations should be "won" for successful transition to peace. The section will conclude with a look at how domestic police operations have influenced the issues and what other organizations besides the army are interested in nonlethality. Broadly speaking, this part will look at the importance of nonlethality and place the development of the idea in perspective.

#### The Media, Cultures and Values

During the Gulf War, friendly and enemy casualties were key considerations. While friendly casualties will always be the overriding worry, the public concern over too many enemy casualties has some impact on the topic of nonlethality. The controversy in the press over the attack and subsequent destruction of retreating Iraqi forces at the

Matlah Ridge is just one example of popular interest. From a military perspective, it was arguably correct to destroy a strong force at a moment of weakness and vulnerability. The major weapon systems the Iraqi troops were withdrawing from Kuwait were a choice target for attack: if reorganized, this equipment could have interfered with and perhaps prevented the attainment of the overall mission.

In North America, one is taught at an early age to "fight fair." A bully, preying on the weak, is held up for scorn. It is drummed into us that we use our strength to help the weak and not to kick a man when he is down. These clichés help show the underlying values that form an essential part of western values regarding the obligations of the "strong" to the "weak".

The attack on the retreating convoys places the mission requirements in conflict with these values. These kinds of issues, when placed under the microscope by the media, become highly controversial for the public and therefore the government. Perhaps nothing can cause mission failure faster than loss of support from either the public or government.

The connections between nonlethality and western values and ideals are not trivial. Nonlethality only becomes an issue when killing is contrary to the success of the mission. Lethality can defeat the mission in a variety of ways: the media, bringing the scenes of death and destruction into living rooms, could weaken or even lose essential public support for the mission. The different sides in a dispute can totally change their stands and agreements as a result of casualties, as another example. The point is that the use of nonlethal weapons in

these types of scenarios could mean the difference between success and failure.

Western values are not the only ones that are an issue here. Different social values become important. Depending on the culture, nonlethality could be viewed as a weakness and consequently promote violence.<sup>49</sup> In other cases, some cultures worry less about the loss of life than other issues. For instance, it may well be for some that to die or be wounded in battle is honourable; to get sprayed with paint or pepper spray is an insult to manhood. Paint or pepper spray, therefore, may actually be a better deterrent for a fanatic. The connection and interplay between nonlethality, the Western world and human values and ideals will become clear during the next chapter when case studies are used to join the specific peace operation activity to a nonlethal category.

#### Historical Perspective

Nonlethality and nonlethal weapons are not entirely new concepts; limiting the use of force has been an issue for nations in the past. However, the concept of nonlethality has really only become worthy of developing further in the last two decades. This makes sense as human values and ideals concerning the rights of individuals and the value of a single life have become increasingly important in the western world in the latter part of this century.

This century saw a rise in interest in nonlethality. North America became keenly interested in the subject immediately after four students were killed at Kent State University in 1968. This interest is



evident in the large number of research areas opened in the early 1970's regarding nonlethal weapons. Overtaken by events, the research interest was not sustained. Training in internal security, key for units participating in domestic missions like Kent State, was also not sustained.

Historical aspects of nonlethality can also be used to shed some light on the training requirements for nonlethality and how it relates to training for regular missions. Internal security training apparently was increased after Kent State. Also, the Canadian Forces, after the Quebec Crisis in 1970, trained with plexiglass shields, batons and tear gas for riot control. This became an important part of Canadian officer basic training, even becoming a separate Mission Essential Task List (METL) task. This training lasted until the mid-eighties when increased budget pressures and lack of training time saw the retraction of internal security training from the basic officer training course (the adoption of this responsibility by the police made this acceptable). The key is that accepting nonlethality means accepting the extra training required for it, both from the point of view of cost and time; needless to say, both are scarce resources. To compete for these resources, interest in nonlethality would have to be high because of a threat or a real requirement and then maintained at that level.

Today, perhaps the increased media attention on peace operations could revive the interest in nonlethality that was apparent to some degree after Kent State. Once again, though, interest appears to peak and wane with no sustained effort, as pointed out in the following:

Bit by bit, non-lethality is creeping into doctrinal thinking. But it is a long hard slog against entrenched attitudes. In September 1992, after a year of international debate, the United States Army issued a draft paper called "Operations Concept for Disabling Measures." It was intended to minimize large-scale casualties in populations caught in a war zone, as well as damage to the environment and infrastructure. The document announced expanded research under the army's "Low Collateral Damage Munitions" program. But almost no attention is paid to non-lethality in a June 1993 revision of the official doctrine. So it is clear that the concept remains controversial.<sup>50</sup>

History has shown that interest in the subject has changed over time, usually as a result of a significant incident grabbing public attention.

#### How We Win

Recent history has indicated that the western world has the potential, if it sets its collective mind to it, to win any conflict. John B. Alexander's (Program Manager for Nonlethal Defense, Los Alamos National Laboratory) point has some merit: "In most wartime scenarios we are going to win, so how you win becomes important."<sup>51</sup> This goes to the political nature of modern war. Nonlethality can make a major impact on how you win, setting forces up for success in the transition to peace during the post-conflict phase of an operation.

The point of winning and losing is discussed from another perspective in FM 100-20, which ponders the issues of military involvement in OOTW: "Positive contributions by the Army are essential to success in these matters. The military instrument of national power alone can not 'win' in operations other than war, but it can lose." This point could emphasize the importance of nonlethal weapons. One could say that peace operations are not about winning a war, but about

not losing it. Once again, arguably one of the easiest ways to lose is through the media reporting specific incidents involving casualties (either friendly or enemy) in such a way that public support is lost.

Winning or losing a peace operation can occur at any level from tactical to strategic; nonlethality is important here. The United States Air Force is also interested in the issue, as was mentioned earlier in this chapter. While they are looking at the tactical level with disabling systems, there are other levels involved, as Colonel John Warden, Commandant USAF Air Command and Staff College points out:

Nonlethal technologies do not appear to be tactical tools with limited utility. Rather, they appear to be strategic-level technologies that give United States powerful new concepts of operations and could allow United States to achieve political and military objectives in ways not previously possible.<sup>52</sup>

In peace operations, the lines separating that which is tactical, operational or strategic are blurred at the best of times. Nonlethality, as Colonel Warden seems to indicate, will only serve to increase this interweaving of the levels of war. More importantly, nonlethality can increase options available at the tactical, operational and strategic levels, and perhaps prevent the failure of a mission by using lethal means.

#### Organizations Involved

To this point we have seen comments reflecting Army and Air Force interests in the topic of nonlethality. This next section will show that more than these two organizations have a stake in this.

Police forces around the world, but particularly in North

America, are also concerned about "non-friendly casualties." The connection between military and police interests has not gone unnoticed:

The United States Defense Departments's Advanced Research Projects Agency (ARPA) is establishing an office that will focus on law enforcement and peacekeeping operations and will be staffed by Pentagon personnel as well as Justice Department representatives.<sup>53</sup>

This relationship will take advantage of similarities between police work and peace operations in OOTW. Along with command and control and body armour, nonlethal technology development will be considered for a combined Defense and Justice Department co-operation.<sup>54</sup> This agreement between the Justice Department and DoD is not a casual, one-time-only event: they are looking at a five year agreement to identify technologies that both the military and police might need.

The conventional army, air force and police forces are not alone in examining nonlethality:

Gary Smith, Special Operations Command Acquisition chief, said the commands priorities include new aircraft and mini-submarines to improve mobility, long range smart weapons, less-than-lethal weapons, lightweight power sources and stealth technologies.<sup>55</sup>

Special operations would naturally have a great interest in such unconventional weapons to match their typically unconventional roles.

#### Literature

Current literature on nonlethality is not immense, but some conceptual work is starting to appear. Articles have also appeared in various magazines, but all appear to have similar roots. No MMAS or other thesis work has dealt with this topic at the tactical or even operational level. Major Morehouse's thesis mentioned in chapter one is the only academic source found that starts to examine nonlethality in any kind of detail.

As seen throughout this chapter, nonlethality appears to be the most common term, and the definition fits the basic concepts the articles are reviewing or discussing. Other terms are frequently found in current literature, but are either not as widely accepted or are not as appropriate as nonlethality or nonlethal weapons. As an example, the term "less-than-lethal"<sup>56</sup> has been used, following the principle that nonlethality is an ideal state, as no weapon system, or indeed any system can be considered 100 percent nonlethal. This term is not widely accepted, and appeared in only one of the articles reviewed.

#### Subject Matter Experts

Many articles on nonlethality were inspired by Janet and Chris Morris. They are very dynamic and active in promoting nonlethality. The Morrisses are an excellent source of leading edge policy documents. They are mainly concerned with the strategic and national policy level, while again, this work is focused in more detail on TTP in the peace operations context. I do not think it is unreasonable to credit them with the majority of work in classifying and categorizing nonlethal technologies. While they are not directly credited in the footnotes for each of the categories mentioned later in this chapter, their work has undoubtedly played a major role, as will be seen further on in this chapter. One key they offer though, as contained in many articles, is the following classifications or categories of nonlethality:

An Anti-matériel nonlethal technology destroys or impairs electronics, or in other ways stops mechanical systems from functioning, or denies areas. An anti-personnel nonlethal technology impairs the functioning of people without causing lasting physiological damage.<sup>57</sup>

The technologies listed in the following section of this chapter have been developed from many different articles, but as already stated, it may well be this one team deserves the credit. At first glance, the number and mix of articles gives the impression that there are a variety of sources of information available. Practically each article however, refers in one form or another to Janet and Chris Morris as a source. The common thread throughout the articles can be tied to their input.

#### Military Works

It appears that doctrine from all countries, not just the USA, neglects to discuss the issue of nonlethality or nonlethal weapons. The closest any document comes to discussing nonlethality is FM 100-23, appendix D, which lists the ROE for OPERATION RESTORE HOPE: it mentions that the use of Riot Control Agents (RCA) requires approval of the Commander of the Joint Task Force (CJTF). It does not go into details of employment, acquisition or any other procedures.

#### Nonlethal Technologies

The following categories of available technologies are relatively complete. Nonlethality however, is a field that can be greatly expanded by creative and innovative thought. This list is therefore not exhaustive, but rather a starting point for future development. A more technically oriented paper could be written based only on the vast array of technologies in existence or being developed. Development is a key point: Frank Kendel, DoD's Director of Tactical Warfare programs, is on record as stating selected technologies with nonlethal potential will be funded in fiscal year 1996.<sup>58</sup>

### Electromagnetic.

*Lasers* can be used to attack enemy optics ranging from the human eye to infra red and thermal imaging systems. In this light, they can be antimaterial or antipersonnel oriented. Current technology is also capable of producing weapons in this category that can be man portable or even hand-held. Obviously, temporary effects are the most desirable when targeting personnel<sup>59</sup>

*High Powered Microwaves (HPM)*, "remotely piloted or man-portable HPM weapons to neutralize electronics or interfere with command and control, to shut down engines or explode ammo dumps; to degrade, interrupt or destroy performance of electronically dependant weapons systems"<sup>60</sup> The same article also goes on to discuss the use of radio frequency systems that have the possibility to "short-circuit human synoptic pathways and temporarily incapacitate soldiers and civilians".

*Non-nuclear Electromagnetic Pulse (EMP)*. The effects of an EMP were recognized during nuclear weapons testing. Electronics developed after the vacuum tube era, unless specifically protected, are highly susceptible to damage from the high voltage, rapidly rising EMP that is induced in the circuits. These effects can be duplicated without a nuclear explosion. According to one article:

A developmental beam generator with a one gigawatt output could be exploited to develop a line-of-sight EMP, which would disable most non-shielded electronic devices. Communications, navigation, data processing and computer systems could all be knocked out.<sup>61</sup>

*Dazzle* effects of light, either delivered by indirect or direct fire, can have a significant impact on personnel. Closely related to

the temporary effects of lasers on personnel, temporary blindness and disorientation can be very effective. In addition, the bucha effect, resulting from high intensity strobe lights at specific frequencies, can cause nausea and vertigo.<sup>62</sup> Such a device figured prominently in Tom Clancey's latest novel A Debt of Honour.

*Tasers* are effectively used by some United States police forces today. The taser or "cattle prod" uses electricity to temporarily paralyse an individual.

#### Chemical

*Supercaustics* could be developed to attack materials, based on incredibly strong acids.<sup>63</sup> They could be tailored for specific substances. Some specific ideas include targeting tires and shoe soles, asphalt road surfaces, rooftops, or optical systems.<sup>64</sup>

*Superglues* or *polymer agents* have been developed for concept evaluation at the Sandia National Laboratories to protect United States nuclear warhead sites. Basically, a foam is sprayed into the room or at the person. The foam, on contact with the air, becomes sticky and turns into "taffylike glue."<sup>65</sup> A similar concept, aimed at equipment, can cover optics and windows or even freeze the moving parts of machines and equipment. Finally, polymers can offer the opposite effect, providing a lubricating property. This could be used as an area denial weapon by "spreading teflon-based lubricants on railroad tracks with steep grades will deny rail use for a substantial interval."<sup>66</sup>

*Embrittlement chemicals*, or Liquid Metal Embrittlement (LME) can be used to change the molecular structure of metals and alloys, causing



them to become brittle and therefore ineffective. They can be:

used selectively on critical metal structures - aircraft, ship or truck components, elevators, metal treads, bridge supports - LME's can cause significant disruption and psychological distress.<sup>67</sup>

*Incapacitants* perhaps forms the largest single group.

Technologies range from tranquilizers inducing sleep to strong dyes that mark an individual for a selected period. The sense of smell can be attacked using skunk oil pellets. The nervous system is vulnerable to a great many substances, CS gas being a good example. Pepper aerosols, containing oleoresin capsicum or OC, the active ingredient in hot chili peppers<sup>68</sup>, have been used in both hand held form and as a remotely detonated spray bomb.

#### Kinetic

*Projectiles* such as rubber or wooden bullets and shot-filled beanbags have been used for crowd control throughout the world. The key problem has been the lethality of these devices at short range. The National Institute for Justice has identified the need for a "velocity adjusting firearm that makes it possible to fire rubber bullets from any distance without causing serious injury"<sup>69</sup>

*Water Cannons* have been employed for crowd control. Jets of water have the advantage of variable pressure for range and force, and few side effects other than wet clothing. The large amount of water required to provide an effective jet limits this nonlethal technology to vehicle mounted systems.

## Sound

*Low frequency sound, or Infrasound* causes disorientation and nausea in humans when emitted at the correct frequencies. Ultra-low frequencies have the added advantage of being able to penetrate buildings and vehicles.<sup>70</sup>

*High volume sound* can be used to create an unbearable atmosphere that over extended periods will cause exhaustion and discomfort. This approach was tried during Operation Just Cause to speed the release of Noriega from his safe haven at the Papal Nunciatura (embassy), but was relatively ineffective.

## Categories

Two choices are apparent: either classify nonlethal weapons by technology or by function. It would be best for the purpose of this chapter to classify by function: the list should not be technology dependant (technology develops and changes at a rapid pace) and it would be short and concise. One article proposes antimaterial and antipersonnel. Included under antimaterial is countermobility. This category can apply equally to antimaterial and antipersonnel, so I believe it deserves to be an entirely different category. The categories will be: (1) Antimaterial, (2) Antipersonnel, and (3) Countermobility.

## Conclusion

This chapter has derived categories of nonlethality for examination in conjunction with the activities important to peace

operations determined in the previous chapter. Current articles and books were evaluated for information in this area.

This chapter explored the concept of nonlethality in more detail, examining various terms used to describe the subject. It looked at the importance of nonlethality and examined some of the technologies and methods used today. The three categories of antimaterial, antipersonnel and countermobility were selected over a technology based category system. This should provide the required background in nonlethality for chapter four, where this thesis will examine how each nonlethal category could assist the activities found in peace operations developed in chapter two.

## CHAPTER 4

### ANALYSIS - NONLETHALITY AND PEACE OPERATIONS

Cayenne pepper was an effective means of proportionate force against low-level threats. The spray helped soldiers avoid the dilemma of using other non-deadly means of force, many of which proved to be ineffective, and using deadly force which was usually not appropriate. The spray was so effective that merely waving any aerosol can in the air was said to ward off Somalis by the end of the operation.<sup>71</sup>

Jonathan T. Dworken, Rules of Engagement Lessons from Restore Hope

#### Introduction

This chapter will combine nonlethality and peace operations to determine the significance of using nonlethal weapons in these missions. Obviously, there is some relevance from the start: the opening quote from this chapter shows how low-technology nonlethal products are used today in operations. Hence, we need to understand how these technologies can enhance peace operations in specific incidents.

Chapter two derived a broad spectrum of peace operation activities that deserve further exploration in how force is used, establishing seven separate headings. Chapter three divided nonlethality into three broad categories: antimaterial, antipersonnel and countertermobility. This chapter will follow by taking the seven peace operations activities as sections and will look at how the nonlethal categories apply to that specific activity, looking for advantages and

disadvantages. Case studies will be used to bring the subject back to reality. Many nonlethal weapons are on the leading edge of technology, some bordering on science fiction. Actual case studies help to keep a proper perspective on the issue.

The conclusion of this chapter will show nonlethality offers potentially mission-saving capability by increasing the scope of action for commanders. By placing less responsibility on the soldier and giving more latitude and room for error, reaction time will be improved, even going so far as to reasonably allow for preemptive strikes without the risk associated when using lethal means. This chapter will show that nonlethality can greatly contribute to removing the force paradox that inhibits a commander during an operation.

#### Security Operations

Perhaps the easiest and most effective time to employ nonlethal weapons is during security operations. This includes force protection, and security of personnel, information and buildings. The nature of current operations, such as protection and supervision of refugee camps in Rwanda, does not restrict this activity to security of strictly mission forces. This becomes very important when trying to identify friend and foe before using lethal force during such tasks as guard duty or perimeter defense.

#### Case 1: Belet-Huen

Perimeter defense of a UN compound can prove to be particularly challenging. The Canadian Airborne Regiment's efforts to stop thieves and potential saboteurs in the spring of 1993 in Belet Huen, Somalia is

a particularly strong example: The Regiment's pride and reputation were critically challenged by the results of incidents with captured and killed Somalis. At the very least, it formed a lasting impression in the minds of Canadian Members of Parliament who eventually did order the disbandment of the Airborne Regiment after an unrelated incident in January 1995. What occurred in Belet Huen that has relevance to nonlethality in peace operations?

Frustration and some arguably poor guidance and leadership led to the torture and death of Shidane Aronem, a captured teen-age Somali, in March 1993. At night, the local Somalis continually attempted to enter the Regiment's compound in search of food and loot. Canadian soldiers, acting in the best interest of the mission and interpretation of the ROE, often could not act in sufficient force to prevent the incursions. The lethal responses available to guard the perimeter could not be effectively employed: targets could not be identified with enough precision and quickly enough to shoot, if indeed that was the correct response. Press clippings indicate that this promoted frustration at all ranks and levels.

According to reported testimony at one of the many courts marshal after the tour:

Lt-Col. Carol Mathieu, the Regiment's Commanding Officer, told officers on Jan 28, 1993 they could shoot to wound if they encountered looters<sup>72</sup>

This wide interpretation of the ROE perhaps opened the door for the misuse of force in Belet Huen. Frustration reached such heights that unfortunate errors in judgement were made at a variety of levels. Orders open to misinterpretation and hence exploitation were issued.

Soldiers finally went too far and tortured and killed a Somali caught infiltrating the compound. The resulting press and courts marshal led to suicide attempts, broken careers and ultimately the demise of a proud unit. So, the use of lethal force in this mission was very, very difficult to apply effectively, and the lack of ability to respond with force had dire consequences.

More than two years before the Belet Huen incidents, Martin van Creveld wrote this prophetic statement in The Transformation of War:

Where iron self-control is lacking, a strong force made to confront the weak for any length of time will violate its own regulations and commit crimes, some inadvertent and others not. Forced to lie in order to conceal its crimes, it will find the system of military justice undermined, the process of command distorted, and a credibility gap opening at its feet. In such a process there are neither heros nor villains, but only victims: whom the gods want to destroy they first strike blind. So difficult to counteract are the processes just described that those caught in them may well never recover.<sup>73</sup>

Although not aimed at peace operations specifically, van Creveld's comments are insightful: the iron self-control refers to the use of lethal and legal force, in other words, respecting the ROE. Here, nonlethal weapons can complement and augment that control. The use of force in this incident destroyed the wielder, not the target. If lethal force proved so difficult to wield, then perhaps nonlethal force could have had an impact.

#### Antipersonnel

Nonlethal weapons could have had a major impact on this case study. Of the three categories, antipersonnel nonlethal weapons could have helped the most. Currently available systems like cayenne pepper sprays and tasers could have allowed the soldiers to react earlier with

less hesitation. Acting forcibly but with nonlethality could have nipped the crisis from the start. Literally, the soldiers could have used nonlethal weapons to "shoot first, ask questions later".

High tech nonlethal responses in this case could include such exotic weapons as radio frequency systems that short-circuit human synoptic pathways and temporarily incapacitate soldiers and civilians. Perhaps most useful would have been the velocity adjusting rifle firing rubber bullets. This would have provided a force that was both appropriate and measured.

Low frequency sound, or *Infrasound* sonics to guard perimeter would have been desirable. Such a device would have gone a long way in preventing Somali incursions if it could cover a long enough perimeter. The static nature of this activity also means a large, semi portable device could be used.

#### Security Operations - Summary

UN missions can be intensely frustrating for soldiers. In this case study, the frustration caused actions that had great repercussions on both an individual and the operational level. Nonlethal weapons, especially antipersonnel, would have provided a means for the soldiers to act within the ROE at the earliest stages of the mission.

This section has gone into great detail concerning some moral issues surrounding the case in Somalia. This is because nonlethality is fundamentally a moral issue and this case is arguably one of the best to point out why. In more general terms, the ethical issue is critical to success from a nonlethal perspective. Van Creveld concludes:



We have been dealing with "squishy" factors such as good and evil because, far from being divorced from warfare, ethics constitute its central core. On the whole, the relationship between strength and weakness and the moral dilemmas to which it gives rise probably represents the best explanation why, over the last few decades, modern armies on both sides of the ex-Iron Curtain have been so singularly ineffective in combating low-intensity conflict.<sup>74</sup>

### Crowd Operations

Riot control and subduing a domestic crowd are probably the first areas in which an individual may consider applying nonlethal weapons. Riot control scenes like those at Kent State University come to mind, and most officers have read or heard of using CS gas and rubber bullets in similar circumstances. Crowd related operations are, however, very important activities that could occur during a peace operation.

Few peace missions are restricted to a rural environment. The crowds encountered during operations in Mogadishu is one example of what can be expected in urban peace operations. Crowd operations can be broken down further into activities such as imposing a curfew, crowd dispersal and assisting police forces.

### Case 2: Mogadishu

In June 1993, UN troops were ambushed in Mogadishu and the crowd surrounding the affair made it very difficult to return fire. The fire fight left twenty four Pakistani peacekeepers dead with untold civilian casualties. A few weeks later, three Ethiopian refugees were killed when Pakistani forces "replied to snipers with artillery fire."<sup>75</sup>

Somalia is an example of a key point discussed in chapter three: it is very difficult to separate civilians from what the western world considers to be soldiers or troops of the various warlords. Some tribal societies (and even, to a degree, some modern ones like the factions in Bosnia) do not recognize the distinction between army and people.<sup>76</sup> This became an issue in Somalia, because Western society would only accept, broadly speaking, the deaths of soldiers, not civilians. Is it possible to tell the difference quickly and accurately enough to effectively return fire?

It is debatable whether or not lethal responses led to the failure of the Somalia mission. However, nonlethal weapons could have allowed UN troops to fire indiscriminately enough to neutralize the ambushers amongst the civilian crowd. This could have saved lives along with the mission.

#### Antipersonnel

Antipersonnel nonlethal weapons are again the response required. Incapacitants are a very useful technology, ranging from tranquilizers to induce sleep to strong dyes that mark an individual for a selected period. The nervous system is vulnerable to a great many substances, CS gas being a good example. The system does not have to affect the internal workings of the body to be effective: water cannons can be a very efficient way of handling crowds. In this case, using a water cannon may have been less effective while under fire unless the water cannon was part of a turret or otherwise protected.

The characteristics of a weapon system to neutralize aggressors in a crowd vary. Pin-point accuracy or wide coverage could both be considered desirable. They could be crew-served or individual weapons.

In Somalia, the ability to rapidly change from nonlethal to lethal force and vice-versa was essential. This indicates a crew served weapon system could be the best approach where size and weight are less of a restriction. An example would be a large calibre machine gun coaxially mounted with a system used to fire tranquilizers, or a water cannon.

#### Crowd Operations - Summary

Countermobility and antimaterial technologies are of little use in this example. Antipersonnel weapons, however, would have been very useful.

Would these types of crowd control systems have a negative impact? Van Creveld points out:

But many of these weapons can be used by repressive states against their own peacefully protesting citizens. Some of the technologies are so suited to use for crowd control or protest-busting that democracies may have to write new rules of engagement for the police<sup>77</sup>

This point is difficult to accept as a negative aspect of using nonlethal weapons against crowds because repressive states would no doubt resort to lethal responses if no other capability exists. Nonlethal technology to conduct crowd control definitely remains a very desirable commodity.

### Patrolling

This activity is common to almost any peace operation and can be considered one of the vital aspects of a mission. This makes patrolling particularly important from a nonlethal perspective. Patrolling includes, but is not restricted to operational investigations and inspections, searches for and disposal of arms and equipment, conducting zone reconnaissance to disarm locals, demobilizing armed elements, and cordon and search. Some patrols are also conducted as a show of force or demonstration of freedom of movement. The most common thread throughout these activities is the act of conducting reconnaissance: determining the size and location of the factions and what their intentions are.

Close contact is inevitable when patrolling. In 1993, cordon and search operations were conducted on a regular basis by the Canadian Battalion in Sector West, Croatia. Based on information gathered by various means, the battalion would cordon off a house to search and seize weapon caches inside the protected area. The local population had created a means to counter this legal operation: they would pass word of the operation by the fastest possible means and form a crowd to counter the operation at the site.

Lethal responses were never used in this case. However, it could have become an issue if the soldiers had not reacted with restraint and calm. Patrols take the friendly force into deliberate direct contact with factions and the civilian population and here more than anywhere else, the use and control of force is vital.

### Case 3: Haiti

Perhaps the best example for this activity recently occurred as part of the United States intervention in Haiti:

The scene was Cap-Haitien, Haiti's second-largest city. On Saturday, as dusk fell, Haitian policemen and American soldiers watched each other warily. The inevitable happened. Sound and fury. An American lieutenant, sensing a hostile movement by an armed policeman, fired, setting off a shoot-out that left ten Haitians dead and an American wounded.<sup>78</sup>

The two armed forces, placed in close vicinity for hours due to circumstances, inevitably resorted to violence. In this case, the United States Marines opened fire first in a preemptive strike. The patrol leader was determined to have acted appropriately in the circumstances by subsequent investigations. His quick action no doubt saved lives by denying the Haitian police the opportunity to use devastating first shots.

Lethal force used in a preemptive role during peace operations, (in this case ten dead Haitian policeman), pushes the UN concept of the use of force only in self-defense to the very limit. Here, it was obvious to the lieutenant that he needed to act to save the lives of his soldiers. He placed himself in necessary jeopardy by acting first with lethal force. A lesser or more cautious individual may have taken too long deliberating the consequences of using force and lost soldiers as a result. A nonlethal response in this circumstance could have had the advantage of speeding-up response time by allowing the commander to make a decision to react without getting overly concerned with non-friendly casualties.

No matter how little doubt surrounds these issues, firing first always involves a huge risk with respect to the media's perception of the event. It also has legal implications from a JAG's perspective. In this case, the patrol was basically guilty until proven innocent by the investigation. This event did not receive much media attention as a result of the prompt action by the chain of command to answer the medias' questions regarding the legitimacy of the actions.

A nonlethal response has obvious advantages with respect to the media. In this case, had antipersonnel technologies been used, the ground forces could have used the incident as a positive media event. The moral high ground is essential for success during peace operations.

No matter how the incident was resolved, it was bound to have an influence on the relationships between the United States forces and the various Haitian groups. The lethal response sent a message that was loud and clear and no doubt had a fair deterrence effect on Haitian actions. If a nonlethal response had been used, would the after-effect of the action on other groups be lessened? Only conjecture can answer such a "what if" question. It may be pertinent now to revisit the values issue raised in chapter three.

The importance of individual rights and freedom, and more relevant to this discussion, even the value of a human life, does not appear to be as strong in Haiti as in the West. If one accepts this, then it is possible to deduce that either death or capture in this incident concerning the Haitian police force would have sent similar messages on United States intentions and capabilities. Admittedly this is stretching it, but the point is that our values and the importance we

place on life make it very difficult to judge what the impact of a loss of a life has on another culture. What we think is a strong message in this incident could turn out to be weaker than we thought.

The values issue is relevant from two perspectives: first, the media and the western public, and second, the Haitian forces involved. While the use of nonlethal weapons may not have a significant impact on the Haitians, its value for maintaining public support for this and future missions of this nature would be significant. At the very least, it supports the FM 100-23 peacekeeping principle of legitimacy by sustaining acceptance. So, it is evident from the viewpoint of cultural values that the use of nonlethal weapons would be advantageous over-all with little negative impact.

#### Antipersonnel

It is important to examine some of the characteristics required of a nonlethal weapon in Haiti for patrolling. The weapon would, as a minimum, need to be short to medium range (a few feet to conceivably 200 meters), man-portable and fast-acting. Reliability, maintenance and training aspects are also important, as always.

The nonlethal weapon design with respect to range is very important in several areas. First, the training aspect must be similar to conventional weapons to help ease the training burden for a regular unit preparing for a peace mission. Secondly, the weapon must be able to be kept ready for close quarter action at all times. Finally, it must be versatile enough to operate at the longer ranges required for neutralization of small arms users. Basically, this means the portable

nonlethal weapon for this scenario needs the same range as conventional small arms.

The weapon would have to be portable and light; patrols will operate on foot for extended periods. The capability of the weapon must be accessed quickly, and the results must be fast-acting. Immediate suppression is essential in these cases to prevent casualties. Goop guns, tranquilizers or a new method of dispensing pepper spray could be used. If the Bucha effect can be controlled, it would also be very useful. Rubber bullets, on the other hand, may not be enough to completely neutralize a tenacious target

#### Antimaterial and Countermobility

Antimaterial technologies would not as useful in this case. Countermobility systems could be useful for restricting movement to the site of the operation to stop re-enforcement or otherwise prevent or control movement. Superlubricants or sonics could be considered in this role for stopping personnel on foot.

#### Movement Control

Forces must be able to manoeuvre to carry out a mission. This is true for both the peace operation unit and the opposing factions. Controlling movement becomes important in the conduct of the mission. This includes manning permanent check-points, establishing temporary ones, and closing routes. Related activities include searching suspicious vehicles, security and control of crossings/lines and roadblocks. Neutralizing and lifting mines could also be considered here.



#### Case 4: Uljanic, Croatia

This section will examine a check point set-up for operations in Uljanic, Sector West, Croatia. The diagram and explanations are from the authors personal experiences in the spring of 1993. While no incident worthy of media attention occurred at this point, it is ideal for examining because it is typical of movement control operations on UN missions.

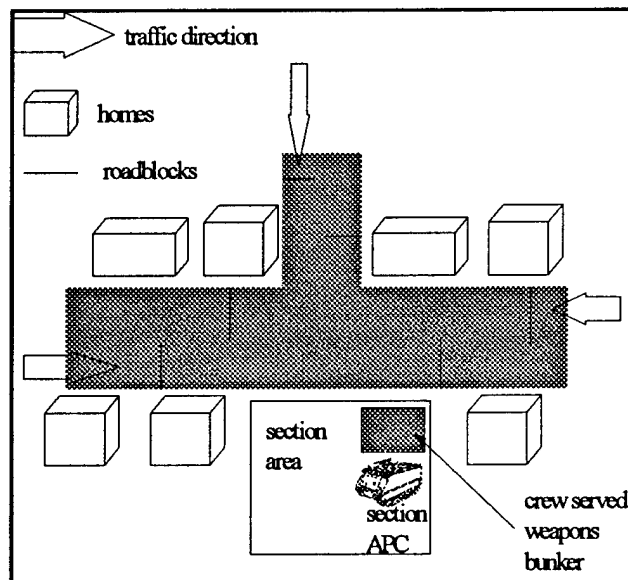


Figure 1: UN Check Point at Uljanik

Entry into the UN protected sectors was controlled by UN manned check points. The aim of the check points was to prevent weapons from entering the zone by controlling movement and searching suspicious vehicles. Figure 1 shows the layout of the actual check point.

The check points are a major source of contact between the UN soldiers and the local population. Close contact is essential to carry

out the mission: the soldier must physically stop the vehicle, talk to the driver and then react accordingly. If the soldier decides to search the vehicle, then contact is even closer.

The weapons available to the checkpoint commander, typically a Master Corporal or a Sergeant, ranged from the 50 calibre machine gun mounted on the armoured personnel carrier to the individual weapons of the section. There were no nonlethal capabilities available.

Given the nature of the task and the weapons available, the implications are clear. Due to the impact of close contact, it is easy to imagine a scenario involving the misuse of lethal force. Obviously, the soldier could overreact, misinterpret or fail to react fast enough. All of these actions could result in unnecessary casualties, either UN or civilian.

One must not forget the location of the checkpoint. While Uljanik was a very small village, it was still populated and all the homes around the checkpoint were inhabited. Typically, civilians wandered the streets or rode bicycles in the immediate vicinity of the checkpoint. The collateral damage from the 50 calibre machine gun, either in bystander casualties or just plain household destruction could have been severe. In the heat of the moment, a well-trained soldier could hesitate in using a crew-served weapon because of the desire to prevent such damage. Such hesitation could be fatal.

#### Antipersonnel

Nonlethal weapons would contribute here. Given the close personal contact involved with this particular activity, antipersonnel

weapons would have a major role. If sonics or infrasound technology could act fast enough, this would be an ideal way to incapacitate the driver and passengers who react with violence at the checkpoint. Other very short range options would be cayenne pepper sprays or tasers. Longer range weapons do not fit this particular scenario, as a deliberate attack from outside the immediate checkpoint area was a very unlikely event. The weapon system would need to be very portable to allow for the guard to search the vehicle. Covering fire could come from a less portable or even crew-served system.

#### Antimaterial

Antimaterial technology would be useful to prevent a vehicle from crashing the roadblock or trying to escape. Given the nature of the target, (a vehicle is a large object) crew-served weapons may fit this bill. Superglues or polymer agents could be considered in this role.

#### Countermobility

Countermobility techniques would be the most useful to stop vehicles. Nonlethal mines could be placed, either automatically or remotely detonated, to spread teflon-based lubricants in front of the vehicle. This would greatly restrict collateral damage from small and large calibre fire.

#### Movement Control: Summary

Close and prolonged proximity to civilians, in this case actually working in the centre of a fairly lively village, places very

specific restraints on UN troops. Collateral damage becomes an important consideration. This, combined with the need to react fast to save lives, clearly shows an area where nonlethal weapons would be beneficial for a specific activity that is common to practically all UN Missions that go beyond the role of strictly observation. Movement control operations could benefit from antipersonnel weapons, both individual and crew-served, and countermobility systems, like an emplaced nonlethal mine.

#### Interposition Operations and Forced Entry

Many peace operations consist of forming a buffer zone between belligerents. Operating between opponents who still may be resorting to force and maintaining neutrality has understandable challenges. Related activities include separation of belligerents and the limitation of incursions and raids. Inserting a force between belligerents or between a force and its intended objective, while trying to retain the capability to solve an issue diplomatically is indeed a challenge.

#### Case 5: Sector West, Croatia

The case to be examined here is Operation BACKSTOP, which occurred in the spring of 1993 in Sector West, Croatia. This operation, conducted by the Canadian battalion under the auspices of UNPROFOR, was designed to show UN resolve with respect to protection of the UN areas, in this case Sector West.

The main highway from Zagreb, Croatia's capital, to the eastern part of the country was cut by Sector West. Trucks and military equipment were forced to by-pass to the North which effectively added

six hours to the journey along winding, narrow roads. With such important lines of communication cut, Croatia wanted them restored and threatened to use force to do this.

Operation BACKSTOP represented battalion-level operations. The operation, effectively a show of force and training vehicles, deployed the battalion into company strong points, protecting the east and west axis of advance along the main highway. Key to the defense was the destruction of Croatian armour starting at the maximum range of 3,750 meters. Maximum range was essential to provide a stand-off capability and to counter the limited number of systems the battalion had. Tube-launched, Optically tracked, Wire-guided missile (TOW) II was the principle anti-armour system available to the Canadian infantry battalion.

While Operation BACKSTOP was a training exercise, there was no doubt among the soldiers of the Canadian battalion that if the Croatian forces had seriously moved to open the highway by force, the transition to combat would have been quick. In this light, the case study will be taken one step further to look at what could have occurred if Operation BACKSTOP had been conducted in earnest against a real Croatian force. Would the battalion commander have had the authority and the nerve to start attacking armour at 3,750 meters? This would be similar to the Haitian example in case three where the USMC forces fired first, except on a much larger scale.

Once again, firing first is a hazardous way to try and successfully complete a peacekeeping mission. In this case, the follow-on effects for UNPROFOR would likely have been catastrophic as

practically all the UN support elements and headquarters were on Croatian territory and lightly defended. Deliberate killing of Croatian soldiers would have totally removed the UN's impartiality as perceived by the local population. In effect, UNPROFOR would have to withdraw.

Perhaps the only way the battalion could have attacked Croatian armour at long range and still maintained the chance for diplomatic means would have been by using nonlethal means. At the ranges dictated by the scenario, antimaterial or countermobility technologies would be preferable. Both of these categories deserve analysis in further detail.

#### Antimaterial

In this case, supercaustics or polymer agents would be best used, perhaps even delivered by indirect fire systems using laser guidance from the forward troops. Micro-waves to take out electronics and targeting systems and substances to destroy optical devices may be of little value against a relatively antiquated T-55 that has few modern guidance systems.

#### Countermobility

Countermobility could be especially useful here. If the nonlethal device, like a teflon "super-slick" substance, permanently removed the highway, until a high tech "antidote" could be administered, then the whole object of the Croatian attack would have been removed. Threat of this or even partial implementation could have been sufficient to prevent the attack, instead of putting a battalion of peacekeepers in a combat environment. If an aggressive placement of the battalion was

required, then countermobility systems could be employed in the more traditional roles, like mines, to seal-off an axis of advance.

#### Interposition Operations: Summary

The key during the separation of belligerents or limiting incursions and raids is how the sides are willing to use force. Van Creveld points out: "Necessity knowing no rules, he feels entitled to violate the war convention and use unlimited force, something the other side, fighting in the name of policy, cannot do."<sup>79</sup> This is a fact of life concerning UN missions that are more oriented on peace enforcement. The UN can not function at the same level of violence as the aggressor without losing the moral advantage required to resolve the issue in a manner acceptable to the rest of the world. Nonlethality offers a way for UN forces to react quickly, even preemptively, without losing the crucial moral high ground.

#### Convoy Escort

Forces must be able to resupply to carry out a mission. As in other activities, this function is not restricted to escorting mission forces, but could include other participants. The convoy may be for logistics and administration, or be conducted as the heart of the mission, as in humanitarian relief operations in Somalia and Bosnia.

#### Case 6: Bosnia

The case study for this activity will examine how UN convoys have typically reacted to Bosnian-Serb checkpoints. These checkpoints, and Bosnian government ones to a lesser degree, have been the primary

reason for the UN failure in gaining the freedom to move in Bosnia. Freedom of movement is essential for delivering humanitarian assistance throughout Bosnia. This freedom comes to a halt very easily when checkpoints, typically using only small arms, but sometimes backed up by armoured vehicles, simply put an obstruction across the road and stop traffic. It was not unusual for Canadian resupply convoys to take two days to conduct what normally should have taken six hours. In many cases, the convoys even gave up the effort and simply returned to garrison. In the worst cases, short of all out attack, mines were placed underneath and around the stopped vehicles to prevent even this option.

When stopped at a checkpoint, a vehicle or a convoy had three basic options: turn back, wait it out, or break through. All three had direct implications at all levels of the mission. If a vital food convoy turned back, it could have international implications. If the convoy attempted to break through, casualties could be the end state, again perhaps with international implications. This issue becomes even more serious when these vehicles and convoys were typically commanded by junior officers or in some cases non-commissioned officers. Finally, due mainly to the terrain and distances involved, communications back to a headquarters was usually bad or unpredictable. The convoy or vehicle commanders were in many cases left to make the decision on their own.

Breaking through, when equipped with lethal force, was never a viable option in Bosnia. The implications at the diplomatic level and the impact on the overall mission were too daunting. This gave the



factions, through checkpoints, a very simple yet outstandingly effective way of controlling or influencing UN actions in Bosnia.

#### Antipersonnel

Nonlethal weapons could have greatly enhanced UN freedom of movement. In cases of critical importance, antipersonnel equipment could have been set up, such as ultra sonics, to neutralize the checkpoint long enough to allow humanitarian effort to pass through. Long range would not be essential, and the equipment could be large and crew-served, installed in an armoured vehicle.

#### Antimaterial

Antimaterial weapons would have been required to neutralize armour if collocated at the checkpoint. In this case, the best neutralization may involve attacking the crew using antipersonnel equipment. If it was desirable to attack the equipment, then a quick efficient means of neutralizing the main and secondary armaments would be necessary. Polymer agents would be the best method. Nonlethal weapons in this case would be characterized by short range and quick-acting. They could be crew served in size and manning requirements.

#### Convoy escort: Summary

The use of nonlethal weapons to assist convoys would greatly enhance the world perception of UN resolve and perhaps remove the most effective weapon the factions currently have: denial of freedom of movement. Simply put, the UN must have freedom of movement to conduct successful peace operations, and nonlethality provides this capability

while avoiding the force paradox. In this specific case, crew served, vehicle mounted antipersonnel weapons would be the most effective way to enhance peace operations.

### System Denial

Destruction or denial of belligerent offensive capabilities could be required, as indicated in previous sections of this chapter. This includes activities such as a show of force, counter-fire coverage, demonstration of force and major weapon systems denial. This activity may be the most important activity from a nonlethal perspective as its use may provide the ability to conduct the other six activities. While system denial is seen in the other activities, it deserves to be a separate activity as the case studies will show.

This section will examine two case studies to show the full spectrum of the activity. Demonstration of force will be looked at through the NATO air attack of a single unmanned Bosnian Serb tank. Major weapon systems denial will be exemplified by the NATO air strikes conducted to deny Krajina Serbs the use of their airfields. Both examples will require very different weapons characteristics to be successful nonlethal capabilities.

#### Case 7: Sarajevo

Sarajevo, the capitol of Bosnia, has been under siege for the past few years and the scene of intense urban fighting. After years of attempts to stop the combat, the UN finally declared a twenty kilometre exclusion zone around the centre of Sarajevo with regards to major weapons systems. Major weapons systems in this case refers to tanks and

artillery pieces. Both sides (Bosnian Serb and Bosnian government) respected the zone to varying degrees by keeping equipment in UN monitored storage areas. The Bosnian Serbs removed equipment and started operating within the exclusion zone as a direct challenge to the UN will.

As the quote cited in chapter two, NATO aircraft attacked and destroyed a Bosnian Serb tanks to show UN resolve. An unmanned tank was selected deliberately. The weapon system selected were 1000 pound bombs, which implies there was likely collateral damage. If the collateral damage in this incident had been significant, the mission could have been seriously jeopardized. The Bosnian Serbs could have used the incident through the media to attack UN objectivity no matter how little damage occurred. Once again, the UN risks losing the moral high ground in events like these, in a similar fashion to the preemptive moves mentioned in earlier case studies.

#### Antimaterial

The parallel in this case with case five on interposition operations is high. The same antimaterial nonlethal characteristics of range and damage apply. This case could use supercaustics or polymer agents, possibly delivered by indirect fire. In this specific example, the UN could have acted with speed and assurance that otherwise would be mission. This becomes very important when, as is the case in UNPROFOR, UN resolve is tested by all factions practically every day.

This form of attack could equally be employed in a retaliatory fashion. UNPROFOR vehicles are frequently attacked by the various factions. The UN could then use an "eye for an eye" philosophy by eliminating a major weapon system (of great value to all sides in Bosnia) each time a UN vehicle is attacked and the attacker is identified with a reasonable probability. Because no lives would be lost, the all-important media battle in fact assists the UN cause and greatly enhances the diplomatic instrument of power. The diplomatic instrument would be enhanced because all sides would be confronted with real actions instead of hollow threats.

Case 8: Republic of Serbian Krajina

The airfield denial case study is equally important in showing how nonlethality could greatly assist UN efforts. Again, as mentioned in chapter two, the largest NATO strike in history was used to close the Krajina Serb airfields to prevent their supporting attacks of Bosnian Serbs in the BiHac pocket. This was done in a conventional manner by bombing the airfield.

The force paradox of chapter two is readily apparat here, as no doubt this action did not lend itself to placing the Serbs in a conciliatory frame of mind for the ever-important diplomatic negotiations. The force paradox would have become even larger if significant collateral damage had occurred. As an aside, would the attacks have occurred in the first place if the Serbs had taken the fairly obvious step of shielding the airfield with women and children in the immediate vicinity?

The attacks on the airfield become even more important when viewed from another perspective. The UN no-fly zone established over Bosnia in 1993 has proven practically impossible to enforce. In the spring of 1993 the biggest offenders were, in order, the Muslims, the Croats and then the Serbs. The impact of shooting down an offending Muslim aircraft, for example, was practically politically unacceptable, so was never authorized.

Additionally, the mountainous terrain of land-locked Bosnia made it very difficult to track and pursue aircraft, especially helicopters. Finally, collateral damage and casualties from shooting down an aircraft operating close to an urban environment could have a major impact on the UN mission. This leads to the deduction that the aircraft must, then, be rendered ineffective on the ground. This can be further extrapolated to deduce that NATO should not attack the aircraft: instead, eliminate the capability of the airfield.

#### Counter mobility

Nonlethal weapons, like super-lubricants based on teflon, could be used to shut down offending airfields operating against UN declarations in the established no-fly zones. Again these could be delivered by indirect fire, from such resources as a battalions mortar platoon. The nonlethal aspect is critical because eventually the factions would take steps, such as using civilians to shield the airport, to stop conventional attack on the airfields by unconventional means.

## System Denial: Summary

Nonlethal weapons would contribute greatly to these scenarios. Control of the air, major weapon system denial and retribution are all of considerable importance in peace enforcement operations. If there is to be an emphasis on using diplomatic means in conjunction with the military instrument of power, as is typical in today's conflicts and peace operations, then nonlethality has a great deal to contribute by keeping the issue free of casualties. In these two specific cases, indirect fire could be used to place nonlethal laser-guided rounds on the respective targets with the required payload. Nonlethal weapons in this instance would also reduce the unconventional options the factions would have in countering lethal force against such targets.

## Conclusion

The cases studied in this chapter involved forces who either used or were equipped with only lethal responses. In practically every case, the force paradox (needing to use force at the tactical level that would cause mission failure at the operational and strategic level) placed commanders at risk by potentially causing hesitation that could end up with friendly casualties or overreaction that could have lead again to casualties along with failure of the operation. Maintenance of the moral high ground is irretrievably interwoven with UN success due to the impact of the media.

An antipersonnel requirement was shown to be desirable in nearly all activities. The breadth of the examples showed that a mission would require both crew served and individual nonlethal weapons to be

successful as a concept. Most applications were short range, but some instances would require weapons with ranges similar to current small arms with instantaneous effects.

Antimaterial nonlethal weapon systems were also shown to have applicability in peace operations. Not surprisingly perhaps, all examples could be met using crew served nonlethal weapons. The best technology appeared to be supercaustics and polymers.

Countermobility showed some very important applications, such as airfield neutralization, while employing teflon related super-lubricants. If a nonlethal round could be developed to be delivered by the mortar tubes typical of an infantry battalion, then the options available to a UN ground commander would be greatly enhanced. Given the number of operations that have to man checkpoints, a nonlethal mine version could also be extremely useful.

Examining the activities, one issue becomes clear: a UN top-down design of a force equipped with a nonlethal capability would be necessary to avoid an unbalanced multinational mission. A single nation on a multinational force showing up with this capability would be able to operate outside the mission ROE's. It would probably be able to conduct the activities listed above more aggressively and more effectively. It would certainly require attention from the mission commander. perhaps even worse would be the impact of a mission were all but one or two nations arrived with nonlethal capabilities. The point here is that nonlethality would impact on the operational level and should therefore be planned from this level on down.

This chapter has brought the philosophical discussion of nonlethal doctrine into the reality of today's peace operations. While only a few examples have been used, they clearly show that nonlethal weapons have a wealth of options to contribute to the operation. They go a long way to deal with the force paradox and the UN quandary when having to conduct forcible actions in peace missions. Lastly, and perhaps most importantly, it will free up and even speed up troop reaction time during a mission which will save soldiers lives. The completion of the mission will always be paramount, but today's armies arguably place a soldier's safety at least on equal footing. Nonlethality would make a difference.



## CHAPTER 5

### DEDUCTIONS AND CONCLUSIONS

Nonlethal weapons do have an important role to play in peace operations. Nonlethal weapons can help in many ways, ranging from ethical acceptance to the preservation of the diplomatic instrument of power. This chapter will bring the thesis to closure by summarizing the benefits of nonlethal weapons. It will then look at the barriers or disadvantages that impede the implementation of nonlethal solutions in peace operations. The chapter will conclude with recommendations for further study.

#### Roundup

Chapter two set the stage by showing the increasing importance peace operations appear to have. They are steadily increasing in the number of different missions, size and complexity. As a result, more and more military attention is being paid to OOTW in general and peacekeeping specifically. This attention has been paralleled by the emergence of the concept of nonlethality. While still in its infancy, nonlethality does have some strong advocates who have been steadily pushing the subject for acceptance or at least further study.

The media and western values were tied into the equation when chapter two examined their roles and effects during peacekeeping missions. The ability of modern communications to relay real-time and

near-real-time images across the globe has placed peacekeeping operations firmly in full public view. Western values and attitudes, especially that of the public, then have a crucial role to play in successfully completing a mission. This is the major driving force for considering the application of nonlethality.

The historical roots of peacekeeping provide another motivator for developing nonlethal weapons. The force paradox (developed and explained in chapter two) faced by a UN commander in many situations begs for more options available between lethal force and no action at all. ROE, written in black and white, shoot-do not shoot terminology, need something to cover the grey areas encountered in real life. Nonlethal weapons have something to offer.

Case studies of nonlethality showed that the three categories, antipersonnel, antimaterial and countermobility had definite applications over seven selected peacekeeping activities representative of the spectrum of missions possible. Further analysis and deductions showed that a UN top-down design of a force equipped with a nonlethal capability would be necessary to avoid an unbalanced multinational mission.

#### The Benefits

This thesis has pursued the question of how and to what degree can nonlethality enhance peace operations. Numerous benefits have come to light throughout the work, and now need to be tied together to show how nonlethal weapons apply in this area. While only touching the major

benefits, the list below is significant enough to display that the concept of nonlethality deserves further exploration.

#### Broad Applications

The first and major point revealed by this thesis is that nonlethality provides capabilities across the whole spectrum of activities potentially requiring the use of lethal force. They were especially suited to the grey area between peacekeeping and peace-enforcement. The validity of this deduction was revealed in chapter four, during the seven case studies examined. The activities were quite inclusive, ranging from patrolling to demonstrating force, as an example.

It is reasonable to conclude, after looking at the representative case studies, that nonlethality can be effective in a wide variety of general situations, not just unique, one-of-a-kind circumstances. More specifically, the analysis revealed that antipersonnel nonlethal systems appeared to be the most effective and the most applicable across the spectrum of activities. An antimaterial capability may be more difficult to introduce and apply. Countermobility systems, while of limited use, may in fact be the easiest to introduce due to design and training factors.

#### Force Paradox

Nonlethality provides a potential solution to the force paradox inherent in many UN missions. The UN military commander, or more likely one of his subordinate commanders at the tactical level, may need or want to use lethal force to solve a low-level issue. Lethal force used

at this level can directly affect the diplomatic instrument of power at higher levels. In some cases, the use of lethal force could render the diplomatic instruments useless.

Nonlethality can help preserve the military-diplomatic power relationships by giving the commander other options at the tactical level besides lethal force. Correctly applied, they could allow for aggressive yet nonlethal actions at the battalion level that could complement and parallel the essential diplomatic and mediation efforts at the higher levels.

#### Impartiality and Legitimacy

Related to the above discussions, this thesis has also shown that two of the tenets of peacekeeping are also strongly assisted by nonlethality: The UN principle of impartiality and the U.S. Army peace operations tenet of legitimacy. In the same manner that the diplomatic tools remain open when lethal force is avoided, so are these tenets maintained. Lethal force used against "belligerent A" may give the perception to the media, but more importantly to both belligerents, that the peacekeeping force is siding with "belligerent B" and supporting their cause. The perception may be strong enough to overpower reality and destroy the sense of impartiality required to conduct peacekeeping. Lethal force used against para-military and especially agitated civilians will definitely lead to questions concerning legitimacy, from both the media and the military chain of command.

Nonlethality will help preserve impartiality and legitimacy by allowing the ground commander to react to a tactical situation without

using lethal force. Antipersonnel weapons are particularly useful here during most of the peace operations activities. Antimaterial weapons would allow the UN Mission to respond on an operational level with nonlethal force while still maintaining legitimacy and impartiality. Neutralizing faction's airfields would be an example of this.

#### Expanded ROE

It almost goes without saying that nonlethal weapons would expand the options available to the commander under the missions ROE. Situations not covered specifically by the ROE can lead to hesitation or slow reactions on the part of the soldiers, perhaps placing their lives in jeopardy. Nonlethal weapons would allow the soldier to react immediately to a perceived threat instead of waiting for total knowledge of the situation. In other words, he could "shoot first, ask questions later".

The increased number of options available to a commander equipped with lethal and nonlethal weapons is an important consideration. It would give the commander more flexibility and a more graduated series of responses in a given situation. This would increase the chances of a successful mission.

The addition of nonlethal weapons and an expanded ROE risks increasing the level of complexity for the soldier. He may hesitate when confronted with a situation, unable to immediately decide upon a lethal or a nonlethal response to a situation. This would generate a requirement for intensive training in this area to make up for this problem.

## Public Support and the Media

Today, newsagents accompany their stories with startling and very timely photographs and videos; often footage is live. The speed and graphic content of the modern media greatly influences public opinion and hence public support for missions. Perhaps nothing will finish a mission faster than a change (for the worse) of public opinion. This also deals with legitimacy, mentioned earlier.

If the use of lethal force is filmed during a peace operation, then public support may be reduced or disappear completely. Nonlethal weapons can take advantage of the modern media's capabilities by showing the public how the force is using every means possible to reduce casualties while completing the mission. On the other hand, showing bruises over the body of a civilian hit by a nonlethal bean-bag can almost as effectively destroy the legitimacy of the operation. Witness how Noriega's opposition used the wounds caused by nonlethal bird shot rounds to influence the media.

Thus, nonlethality can help preserve public support and win the media war. In the information age, this benefit will only increase in importance as more and more people take advantage of information systems.

## Bridging the Culture Gap

Nonlethality can help bridge the culture gap between western values and other societies. In some societies, there is no distinction between the soldier and the civilian. In some societies, there is little respect for human values and the importance of an individuals

right to life. Western soldiers, during peacekeeping missions that border on peace-enforcement, are placed at a distinct disadvantage in confronting individuals from these types of societies. This was demonstrated in the case study on crowd control, using events in Mogadishu as an example.

Nonlethal weapons can help place the soldier on an equal footing by giving him a tool he can use to respond with, within his own value system. Because he will be trained for war, and raised with western values (like the strong must help the weak) there will be some disconnect between his regular force experience and the experience he will need for peace operations. On one hand, he is trained and prepared to react quickly and violently. On the other hand, he must now show restraint, yet another U.S. Army peace operations tenet. Nonlethal weapons will help provide the bridge over this disconnect.

#### Frustration

Strong, war-ready units placed in difficult circumstances, namely restrictive ROEs or tough mission aims, will face increasing levels of frustration over time. The inability to react or respond effectively will place great demands on the individual. In retrospect, it is amazing that so few incidents based on pent-up emotions do occur during peace operations. This is a credit to the discipline of the soldiers involved.

Nonlethality will reduce stress and frustration at the soldier level by allowing him to react to incidents. The case study on security operations clearly showed what can occur if it is difficult to avoid the

use of lethal force against civilians. Here, individual antipersonnel weapons can provide the most constructive capability.

#### Transition OOTW-War

Nonlethal weapons simplify the transition for units conducting and training for war and OOTW. This was touched upon when discussing bridging the culture gap. It is doubtful there will be separate forces in the future for OOTW and war, so a unit must be prepared to do both. Modern warfare places great demands on individual training, and arguably demands a mind-set and reactions different than those required for peace operations.

Nonlethal weapons will allow to some degree a soldier to use his well-honed war skills, like offensive action and shooting first, in a peace operation. That is not to suggest that the soldier can spray civilians at will with goop or pepper spray. It does mean that his reactions can be much less confined and more in keeping with his warfighting skills. This will help a soldier switch between OOTW and war.

#### Impediments and Disadvantages

From the analysis it can be concluded that the mix should include both a crew served lethal and nonlethal means. To deploy without lethal force today severely limits the commander's ability to influence the opposing factions by a show of force, and weakens the ability of the force to effectively protect itself.

The requirement for both a lethal and nonlethal means during a peace operation is a disadvantage. A force needs to be able to fall



back on lethal force if the mission deteriorates into war. An example would be the UN fighting its way out of Bosnia or Croatia if the situation suddenly deteriorated. Requiring both means increase the training requirements, maintenance load, and so forth. Previous chapters indicated a single weapon system could be employed, with a "phasers on stun" setting. Major design and development in both TTP's and technology would be required before this would be a valid force or a valid, employable concept.

The major impediment, though, to the implementation of nonlethality is the relative immaturity of the technologies and the concept. This of course means no doctrine or concept of operations. If the US Army gets serious about peace operations, especially peacekeeping missions that border on peace-enforcement, then money needs to be spent investigating and developing chosen nonlethal technologies mentioned in chapter three. Tight budgets and downsizing will make it very difficult to introduce a totally new concept. The cost of training, maintenance and other life-cycle considerations must also be accounted for.

Finally, the soldier must accept the concept for nonlethality to be effective. Being placed in harms way, armed with nonlethal weapons, may be a difficult transition to make, even if one is also armed with complementing lethal weapons. The image of weakness and lack of "real soldier stuff" that can accompany the subject of nonlethal weapons may well be the biggest impediment.

### Recommendations

The lack of serious academic and military attention to the field of nonlethal weapons is startling. It is almost as if there is a physical blind-spot associated with the topic, so any additional research on this subject would be beneficial. Consequently, it is relatively easy to recommend areas for further study.

Further study of the available nonlethal technologies would be of interest. Such a study should examine the technologies for information on their current state of development and their potential. This would likely end up as classified material, if it was to be comprehensive and useful, due to current research being conducted in the United States (hinted at in open literature sources).

The agreement between DoD and the Justice Department deserves an individual study. Applications and connections with police operations and peace operations are many and varied. Due to the scope of this work, it was not possible to pursue this connection, although the author was convinced there were some significant similarities between peacekeeping in Sarajevo and policing in some parts of downtown Kansas City (or indeed, most major cities throughout the world).

Joint nonlethal applications could be explored. The Air Force is showing interest in disabling systems and no doubt the Navy and the Marines are also very interested in their applications.

Finally, the possibilities of high-tech information and surveillance systems, brought down to the lowest tactical level, deserves attention. The section on limitations in chapter one highlighted how, using modern technology, the individual peacekeeper

could have a significant influence on the operation without resorting to lethal force.

#### Concluding Case: Mogadishu Revisited

What can we expect in the future with respect to nonlethality and peace operations? A glimpse was offered in late February 1995 when U.S. forces were dispatched to Mogadishu to cover the final withdrawal of UN forces from Somalia. The following quote from the on-board reporter in his article Bullets to beanbags: A military evolution states:

ABOARD THE USS OGDEN - when India Company of the 3rd Battalion of the U.S. Marines' 1st Regiment storms the beaches of Mogadishu in a few days the firepower at hand will include an unorthodox arsenal of wooden bullets, beanbag guns and a sticky foam that glues adversaries to the ground . . . . Those with 12-gauge shotguns will be able to fire birch plugs or rubber pellets designed to bruise and intimidate rather than kill. Three variants of pepper spray, formally known as oleo-resin capsicum will repel intruders, while bean bag ammunition is intended to "slap the skin and not penetrate it," said Lance Corp. Daniel Hoemann.

Stinger grenades disperse troublemakers with a high-velocity burst of 115 rubber pellets; "flash bang" explosives stun and confuse with noise, pressure and a burst of light equivalent to 7 million candlepower.

Perhaps the most exotic munition is the Sticky Foam Gun developed by Sandia National Laboratories in 1992 under sponsorship of the National Institute of Justice.<sup>80</sup>

This company level trial represents a huge step in the military use of nonlethal weapons. For the first time, an organization has been deliberately equipped and prepared with nonlethal weapons. While only antipersonnel systems were selected, important lessons will be learned from the trial deployment. It is unfortunate that this thesis closed before the results were available from this trial.

In conclusion, one of the most important points signified by this event is the indication that the chain of command is willing to

consider the subject. This implies that the potential benefits of nonlethal weapons are significant enough to risk employing them in actual combat or near-combat operations. This willingness to try nonlethal weapons also indicates something more subtle, but vastly more important: it reveals military minds not only open to change, but actively seeking and embracing new concepts and doctrine. That is something any organization can be justifiably proud of.

## Notes

<sup>1</sup>Capt M.D. Martin, USN, Non-Lethal Weapons. A Policy Planning Paper from the Office of the Under-Secretary for Defense (Policy) dated 29 May 91, 1.

<sup>2</sup>Reported in the Kansas City Star, Sunday, August 7, Around the World, page A-7. The Greenpeace boat Rainbow Warrior clashed with a French patrol boat during an incident involving French trawlers and camera crews.

<sup>3</sup>Field Manual 100-5 Operations, Headquarters, Department of the Army, June 1993. 13-14.

<sup>4</sup>"How American to seek a technological solution to a problem of command climate and discipline that was more easily resolved by doctrine and training". A comment by Dr John Fishel, thesis committee member, while reviewing a draft.

<sup>5</sup>David A. Fulgham, "Nonlethal Weapons Give Peacekeepers Flexibility," Aviation Week and Space Technology, 7 December 1992, 50.

<sup>6</sup>Major D. A. Morehouse, A New Strategic Era: A Case For Nonlethal Weapons (MMAS thesis, USACGSC, 1992).

<sup>7</sup>Toffler, Alvin and Heidi, War and Anti-War, (New York: Little, Brown and Company, 1993), 126-127.

<sup>8</sup>A quote provided by Lieutenant Colonel (Canadian Signals) Bruce Jackson during discussions June 1992. Carl von Clausewitz, On War trans by Michael Howard and Peter Paret (Princeton, Princeton University Press, 1984). Book IV, page 26.

<sup>9</sup>Martin van Creveld, The Transformation of War, (New York: The Free Press, 1991), p223.

<sup>10</sup>A National Security Strategy of Engagement and Enlargement, The White House, July 1994, preface i.

<sup>11</sup>ibid.

<sup>12</sup>Robert D. Kaplan, "The Coming Anarchy," The Atlantic Monthly, February 1994, 48.

<sup>13</sup>Dag Hammarskjold, quoted in Field Manual 100-23 Peace Operations, Headquarters, Department of the Army, December 1994, 1.

<sup>14</sup>Ibid, 111

<sup>15</sup>Ibid.

<sup>16</sup>Ibid.

<sup>17</sup>Ibid, 2-7.

<sup>18</sup>Extracted from a draft version of Field Manual 100-20 circulated for comments at CGSC, 3-11.

<sup>19</sup>Colonel John Gardam, The Canadian Peacekeeper (Burnstown, Ontario: General Store Publishing House, Inc, 1992), 32.

<sup>20</sup>William J. Durch, The Evolution of Peacekeeping (New York: St Martin's Press, Inc., 1993), 26-28.

<sup>21</sup>Security Council Document S/11052/Rev.1, quoted in F.T. Liu. United Nations Peacekeeping and the Non-use of Force (Colorado: Lynne Rienner Publishers, Inc., 1992), 12.

<sup>22</sup>United Nations Emergency Force II: a buffer force between the Egyptians and Israelis to supervise the cease fire after the Yom Kippur War of 1973.

<sup>23</sup>Durch, 474.

<sup>24</sup>Ibid., 471.

<sup>25</sup>F.T. Liu, 7.

<sup>26</sup>FM 100-20, 3-16.

<sup>27</sup>United Kingdom Field Manual, Volume V All Arms Tactics, Special Operations and Techniques Part 1 Peacekeeping Operations (UK Army Headquarters, 1988), pxix.

<sup>28</sup>Ibid., 2-2.

<sup>29</sup>Ibid., 6-17.

<sup>30</sup>Ibid., 6-23 to 6-29.

<sup>31</sup>UN peacekeeping Operations: Organization, Conduct and Logistics, Functional duties of personnel. Russian Army, Nov 1994, 122.

<sup>32</sup>Ibid., 82-121.

<sup>33</sup>Canadian Forces Publication 301(3) Peacekeeping Operations First Draft, June 1992, Preface pi.

<sup>34</sup>Ibid., 1-20/22 .

<sup>35</sup>FM 100-20, p1-2.

<sup>36</sup>FM 100-20, p2-8.

<sup>37</sup>FM 100-20, 3-20.

<sup>38</sup>FM 100-23, 32.

<sup>39</sup>F.T. Liu, 11.

<sup>40</sup>Durch, pxii.

<sup>41</sup>Ibid.

<sup>42</sup>The Kansas City Star, a typical daily newspaper, published a story about the situation in Bosnia or Croatia every day from September to November.

<sup>43</sup>The Kansas City Star Friday 23 September, 1994 NATO Retaliates Against Serb Attack, A-2.

<sup>44</sup>The Kansas City Star Thursday 24 November, 1994 50 NATO Planes Attack Serb Anti-aircraft Missiles, A-2.

<sup>45</sup>Toffler, 125.

<sup>46</sup>Capt M.D. Martin, 1-2.

<sup>47</sup>Quote taken from a comment by LTC Adams while reviewing initial draft of chapter one of this thesis.

<sup>48</sup>Maj Roger C. Hunter, USAF, "Disabling Systems and the Air Force," Airpower Journal (Fall 1994): 43.

<sup>49</sup>Toffler: 134.

<sup>50</sup>Toffler: 132.

<sup>51</sup>"Aerospace Laureates," Aviation Week and Space Technology (January 24 1994): p19.

<sup>52</sup>Glenn W. Goodman, "Upping the Nonlethal Ante," Armed Forces Journal International (July 1994): 13.

<sup>53</sup>Pat Cooper, "ARPA Office Takes On Crime," Defense News vol 9 #28, 27-3 July 94: 16.

<sup>54</sup>Ibid.

<sup>55</sup>Debra P. Werner, "United States Special Ops to Study Performance -Enhancing Drugs," Defense News April, 18-24, 1994: 34.

<sup>56</sup>Ibid.

<sup>57</sup>Janet Morris, In Search of a Nonlethal Strategy, an unpublished draft essay given to the author in 1992: 4.

<sup>58</sup>Goodman: 13.

<sup>59</sup>Morris: 7.

<sup>60</sup>Author unknown, "DOD Urged to Adopt Nonlethal Warfare Strategy," Defense Electronics, March 1992: 22.

<sup>61</sup>Paul R. Evancoe, "Non-Lethal technologies Enhance Warriors

Punch," National Defense, December 1993: 27.

<sup>62</sup>Ibid: 28.

<sup>63</sup>Morris: 13.

<sup>64</sup>Evancoe: 27.

<sup>65</sup>John Barry and Tom Morganth, "Soon, Phasers on Stun," Newsweek, 7 February 1994: p25.

<sup>66</sup>Morris: 17.

<sup>67</sup>Janet Morris, Nonlethality: A Global Strategy White Paper, a paper given to the author in 1992 by Janet Morris: 2-A.

<sup>68</sup>Goodman: 13.

<sup>69</sup>William Matthews, "Cops Put Defense Technology to Work," Air Force Times, 11 April 1994: 31.

<sup>70</sup>Evancoe: 28.

<sup>71</sup>Jonathan T. Dworken, "Rules of Engagement Lessons from Restore Hope," Military Review, September 1994: 34.

<sup>72</sup>"Commander believed Somali a terrorist prior to shooting," "The Ottawa Citizen," 27 September 1994: A5.

<sup>73</sup>van Creveld: 178-179.

<sup>74</sup>Ibid.

<sup>75</sup>"Making monkeys of the UN," The Economist, 10 July 1993: 34.

<sup>76</sup>van Creveld: 56.

<sup>77</sup>Toffler: 133.<sup>77</sup>

<sup>78</sup>"Haiti: Operation Uphold Something," The Economist (1 October 1994): 52.

<sup>79</sup>van Creveld: 145.

<sup>80</sup>Rick Atkinson, "Bullets to beanbags: A military evolution," The Kansas City Star, Sunday, February 26, 1995: A-1.



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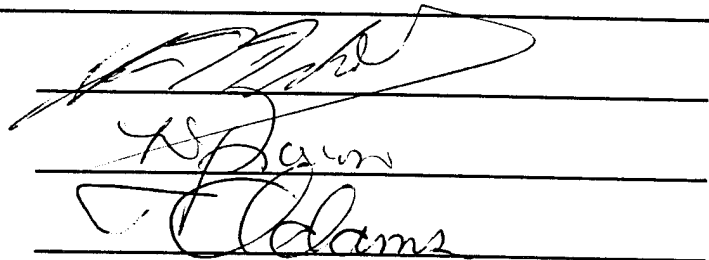
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